HOW TO BE ALWAYS WELL

By ROBT. G. JACKSON, M.D.

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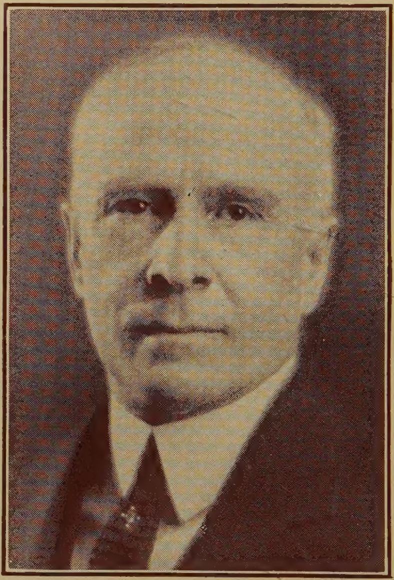

Yours sincerely,

Robt Jackson M.D.

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BY

ROBERT G. JACKSON, M.D.

Past Editor, Dietetic Section Archives of Therapeutics, New York
(A Journal for Physicians)
Past Editor, Dietetic Section Therapeutic and Dietetic Age, New York
(A Journal for Physicians)
Past Member Medical Advisory Board Defensive-Diet League of America
(A Physicians' and Dentists' Association)

Author of
"Make Your Mind Build Health"
"Master Guide to Physical Perfection"
"The Fattening Regimen"
"How to Keep Slender—and Well"
"Systematized Muscle Exercises"
"Constipation: Its Cause and How to Treat It"
"Blood Pressure"

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CONTENTS

PAGE
INTRODUCTION 9

PART ONE

PROLOGUE—"THE BODY BEAUTIFUL" 15
BASIC PRINCIPLES 27

CHAPTER ONE
THE SERIOUSNESS OF LIVING 35

CHAPTER TWO
ANATOMY AND ENVIRONMENT—MAN'S LIMITATIONS 39

CHAPTER THREE
THE HUMAN BODY'S LIMITATION—FOOD 42

CHAPTER FOUR
WHAT IS FOOD? 45

CHAPTER FIVE
THE FOODS OF CIVILIZATION 48

CHAPTER SIX
THE FOODS OF CIVILIZATION—CONTINUED 74

CHAPTER SEVEN
THE CIVILIZED (?) BREAKFAST 91

CHAPTER EIGHT
OTHER FOOLISH FEEDING HABITS 94

CHAPTER NINE
ACID-FORMING FOODS=ACIDOSIS=DISEASE 100

CHAPTER TEN
CONSTIPATION AND DISEASE 109

PART TWO

PAGE

PROLOGUE—WHY BE SICK? 119

CHAPTER ELEVEN

THE MUSCLES AS A FACTOR IN HEALTH AND DISEASE 127

CHAPTER TWELVE

MUSCULAR EXERCISE AND HEALTH OF INTERNAL ORGANS 135

CHAPTER THIRTEEN

THE VAST IMPORTANCE OF THE SKIN 138

CHAPTER FOURTEEN

THE SKIN AND ITS NATURAL ENVIRONMENTAL STIMULI 146

CHAPTER FIFTEEN

THE DRUG BEVERAGES OF CIVILIZATION 153

CHAPTER SIXTEEN

THE UNNATURAL CONDIMENT HABIT 167

CHAPTER SEVENTEEN

THE HEALTH WASTE IN NERVE AND MUSCLE TENSION ... 171

PART THREE

PROLOGUE—WHY BE SICK? 181

CHAPTER EIGHTEEN

MAN'S HOPED-FOR DESTINATION—PERMANENT HEALTH 191

CHAPTER NINETEEN

THE SKIN FUNCTIONS MUST BE COMPENSATED FOR HARM DONE THEM BY CLOTHES 194

CHAPTER TWENTY

THE NECESSITY OF NATURAL STIMULI FOR PERFECT FUNCTION 201

CHAPTER TWENTY-ONE

EFFORT, NOT EASE, IS THE LAW OF ALL DEVELOPMENT 205

CHAPTER TWENTY-TWO PAGE
AN INCIDENT THAT STARTED ME THINKING 211

CHAPTER TWENTY-THREE
MY OWN DAILY "EFFORT" THAT MEANS THE "DEVELOPMENT" OF BODILY PERFECTION 214

CHAPTER TWENTY-FOUR
TO DEVELOP A RESISTANT BODY, THE BODY MUST BE MADE TO RESIST 219

CHAPTER TWENTY-FIVE
SYSTEMATIZED MUSCULAR EXERCISE ESSENTIAL TO PROLONGED YOUTHFUL VIGOR AND LONG DISEASE-FREE LIFE 227

CHAPTER TWENTY-SIX
WE MUST EARN—WE CANNOT BUY—HEALTH AND IMMUNITY FROM DISEASE 237

CHAPTER TWENTY-SEVEN
HOW WE BUILD SICKNESS AND DISEASE 252

CHAPTER TWENTY-EIGHT
THE MARVEL IS THAT WE LIVE SO LONG—AND LIVE THE WAY WE LIVE 257

CHAPTER TWENTY-NINE
THE IMPORTANCE OF A LIFE-IMPARTING BREAKFAST 265

CHAPTER THIRTY
THE VITAL IMPORTANCE OF ENTIRELY NATURAL FOODS 274

CHAPTER THIRTY-ONE
THE TREMENDOUS IMPORTANCE OF MENTAL AND EMOTIONAL CONTROL 284

CHAPTER THIRTY-TWO
THE SLEEP AND EMOTIONAL REFLEX CHAINS 289

CHAPTER THIRTY-THREE
NOT NECESSARY TO BE PRIMITIVE TO HAVE PRIMITIVE HEALTH 303

CHAPTER THIRTY-FOUR PAGE
SICKNESS IS SIN—OR THE RESULT OF SIN 307

CHAPTER THIRTY-FIVE
THE PRINCIPLES OF PROPER FEEDING 314

CHAPTER THIRTY-SIX
THE IMPORTANCE OF A COMBINATION OF NATURAL WHOLE GRAINS 328

CHAPTER THIRTY-SEVEN
PRACTICAL CONSIDERATIONS IN OPERATING THE REFLEX CHAINS 340

CHAPTER THIRTY-EIGHT
SYSTEMATIZED MUSCLE EXERCISES 344

CHAPTER THIRTY-NINE
THREE KINDS OF BATHS—LIGHT, AIR, WATER 355

CHAPTER FORTY
APPETITE CONTROL OR FASTING 371

CHAPTER FORTY-ONE
PRACTICAL SUGGESTIONS CONCERNING TENSION 378

CHAPTER FORTY-TWO
THE REDUCING REGIMEN 383

CHAPTER FORTY-THREE
THE FATTENING REGIMEN 395

CHAPTER FORTY-FOUR
FOOD COMBINATIONS AND MENUS 405

CHAPTER FORTY-FIVE
CLEANLINESS 426

CHAPTER FORTY-SIX
VALEDICTORY 436

HOW TO BE ALWAYS WELL

HOW TO BE ALWAYS WELL

INTRODUCTION

HOW TO BE ALWAYS WELL! That ought to be a strange title for a book written for civilized people to read. The very fact of being civilized ought to imply a knowledge of how to be always well, since it is true that the uncivilized or savage races are almost entirely free from disease. Think of it! People knowing nothing of science, people without books or schools, people who know nothing even of the three R's, people who can only read the sign language of nature, people who never heard of sanitation, or hygiene, or dietetics, or psychology, or domestic science, or physical culture, —are able to grow to be very powerful and large in stature, to live very lengthy lives—judged by civilized standards—almost entirely free from disease, and die, almost invariably, from old age or accident.

Why, to us civilized people, that almost seems like divine intervention to protect and prolong the lives of these simple races! But it is not. It is, however, a divine provision that enables them to live so nearly disease-free.

It is the intent of nature, or God, that all men shall be disease-free. And in nature are to be found principles of living, obedience to which—laws, the living in harmony with which—will ensure mankind freedom from all disease. The simple races, living what we call natural lives, do live in harmony with these laws. That is what natural living means.

Although it is not divine intervention that keeps the savage disease-free, it must be intervention of some kind that so constantly prostrates great masses of civilized mankind with sicknesses and loathsome and horrible diseases. That must be self-evidently true. For if nature intended mankind to be always well, and natural provisions obtain for ensuring that they may be well, yet we find vast hordes of men terribly afflicted with disease, then certain it must be that something, some influence, has intervened to prevent the carrying out of the benevolent intent of nature. Whatever that thing or influence is, it is responsible for the suffering from cancer, tuberculosis, 'flu, pneumonia, appendicitis, typhoid fever, stomach ulcers and the thousand and one other sicknesses and diseases suffered by civilized, educated, learned and intellectual mankind. That same thing or influence is also responsible for the calling away from productive employment of the army of physicians, hospital attendants, druggists, nurses, manufacturing chemists, etc., employed to care for and bring some measure of relief to those afflicted civilized human beings.

Let me drive this point home. Think of it! Ignorant savages are able to live disease-free, while in civilization some of our greatest public institutions—hospitals—are for the taking care of the sick and diseased. And ever and ever these hospitals grow larger and more numerous, and ever and ever the cry is for still more and still bigger hospitals, sanatoria and nursing homes. What can be the reason?

Is it likely God planned that the very apex of His creative achievements, civilized mankind, should be the only part of His creation that would manifest this imperfection of disease? Why it seems almost a blasphemy to even ask the question.

If all wild things, including wild men, are practically disease-free, and only civilized mankind are diseased, it must seem some intervention by civilization itself and not by God has caused the diseases of civilization. Neither is it necessary to assume an intervention by God to save savage mankind and the lower animals from disease. It is only necessary to assume that they live as God intended them to live, or according to the laws of nature. And if it is civilization that has thus intervened to induce disease where none was intended by God, then it must be in the institutions, the habits, of civilization, or some of them, that we must seek for the cause or causes of civilization's multitudinous and multiform diseases.

The simplest of reasoning leads to the foregoing conclusion and the most abstract and profound can lead to no other.

Even a cursory examination of the living habits of civilized peoples soon proves the conclusion is indubitably true.

In the following chapters we shall examine these habits and determine how they may, therefore of a certainty do, produce the diseases of civilization. Having located the causative habits, we shall then learn how the diseases of civilization may be avoided by avoiding their habit-inducing causes. And we shall show how those habit-causes may be avoided and still live in civilization; or, where they cannot be avoided, how to compensate them.

I am convinced that the more intelligent reader—and only the intelligent reader can be interested enough to read a book on this subject through—will never again, when he is sick or diseased, be guilty of uttering the hideous blasphemy:—"It is God's will," or "God's will be done." Rather shame will be his that he has done such despite to God.

In the following presentation the professional reader may at times discover contentions that do not strictly conform to present-day physiological concepts, but I think it will be generally noted that when such is the case it is with concepts and not with demonstrated physiological facts that my concepts differ. But I have been forced to adopt these concepts to explain satisfactorily results obtained in my own case and similar results obtained in many other cases.

In other places I have felt forced to adopt a phraseology that will convey to the lay mind a certain concrete idea that the proper technical phraseology would fail to convey, yet the non-technical phraseology may, upon its surface, seem to the professional mind to represent ideas that I really do not hold. I have not known how to avoid this, nor do I think anything but good can result, since it is for the ultimate good of our profession that the people be taught the great importance of correct living habits.

Repetition of certain facts that I deem of great importance is intentional in this volume. From long experience in teaching new ideas, I know this is very necessary.

ROBT. G. JACKSON, M.D.

Toronto, Canada.
December, 1932.

PHOTO OF THE AUTHOR AT 75

The perfection of physique manifested in the above photograph can be attained in and maintained into very advanced life only by living in accordance with nature's living rules plainly written in the wide-open book of nature.

Robt Jackson M.D.

PART ONE

PROLOGUE

As a prologue to this, it is hoped, instructive treatise upon "How To Be Always Well," I feel I cannot do better than reprint here my first article in the "Therapeutic and Dietetic Age," a journal circulated only among physicians, published in New York: when I was handed the honor of appointment to the editorship of the Dietetics Department of that journal.

If the layman finds an occasional somewhat technical word in this prologue let him not be disturbed about the possible presence of technicalities in the book itself. The prologue was written for physicians to read, but the book is written chiefly for the non-medical reader. It is entirely devoid of both technicalities and attempted flourish. Its object is more to enlighten and educate than to charm, only in the sense that enlightenment itself is one of the most charmful of charms.

"THE BODY BEAUTIFUL"

Reprint of an article by the author from The Therapeutic and Dietetic Age, May, 1924.

> *Dr. Jackson's acquisition to our staff as Department Editor of the Dietetic Section in the journal will prove a constructive adjunct to our plans for a higher standard of service to our readers. In the following article, Dr. Jackson departs somewhat from conventional lines, in submitting a semiphilosophical basis for the arguments in the articles which are to appear in the Dietetic Department of future issues. I sincerely urge those readers who properly wish to evaluate the balanced dietary and a systematized regime of living in their relation to the properly developed human body, to peruse patiently the following paragraphs, not for what they offer for any immediate application, but that a correct point of view may be obtained for estimating the value of future articles by Dr. Jackson.*—THE EDITOR.

Cosmically understood, all phenomena are equally beautiful, since all are manifestations of the Divine Effluence. In other words, all things must be equally beautiful, since all things flow from the Infinite Source—the All-Life—that is out of God, therefore are God.

Judged, however, only by what the eye takes in, there is as wide a difference in the beauty of some things in comparison with others as there is difference in the quality of goodness between a conventional satan and the Seraphim.

And of all the beautiful externals manifested to the sense of sight, surely the most superbly beautiful is the beautifully developed human body. Not many of us know this, however, because of a misdirected and misapplied religious sense which has begotten in us a prudish and unclean and unholy conception concerning this wonderful temple of the soul.

It is not that always those who look upon the body as immoral and unclean are religious, but always this conception has come down to them from a religious past, dominated by monks and men of narrow vision, men formally sanctimonious rather than spiritually enlightened, who failed to see that by giving the body an unclean character they unavoidably and automatically made it impossible for the human eye to see the unclothed body without thinking unclean thoughts. Moreover, by making of it something that should not be seen, they made it a challenge to the more imaginative and venturesome qualities that are in most of us, at whose command we would see what is forbidden to us, and, seeing, find only what we are looking for, the unclean that we have been taught is there.

However, laying aside this beastly conception and viewing our real selves as veritable sparks from the Infinite—souls empowered to build for ourselves "out of the dust of the ground" the most wonderful of all temples, as we actually do,—we are in a proper mental attitude to see the human body as the potentially beautiful thing it is.

It is not meant to imply that every human body is superlatively beautiful in its external aspects, although it is surely within the range of possibility that every human body might be. It is only because we have so contemned and despised the body and thought it so unworthy that it is still the unbeautiful, because underdeveloped, thing it is, with exceptions rare enough to be notable.

The time will come when the phrase, "in the image of God" means something actual and concrete—means that actually we are made in the image of God, in that we have creative power, with power of intellect to control, within certain limitations, the laws of nature to our advantage and advance. We then shall see that to neglect and to despise and to debase the body is to neglect and despise and debase its holy tenant and builder, the divine spark which constitutes ourselves. When that time comes we shall cease to see in the human body the moral putrescence which some see in it now, since that view would be incompatible with its real character. And, when we see in our bodies temples made by our real selves for the housing of our Essence of Life, then shall we begin to build them into something approaching, perhaps surpassing, the beauty of body attained by the ancient Greeks.

Intellectually, the ancient Greeks are said to have been two whole grades above the most advanced of modern nations; this means that their average of culture was as high above the average culture of the most advanced races of our day as the average of the most cultured races of to-day is above the average among the black or backward races.

Intellectual and cultured, however, as those old Greeks were, they not only prized beauty, they idealized and all but, if not quite, worshipped it. Among the objects idealized, and all but idolized, by them, no single object came so near their conception of the ultimate in beauty as did the human body. And those cultured Greeks, whose divine artistry was so far above ours that our greatest achievers can but imitate them and sigh for the inspiration that will enable them the better to imitate their wonderful artistry, loved to embody in imperishable marble the actual embodiments in flesh and blood living all about them, of their divinely idealized human forms.

And because they idealized the human body as a perfect thing, they thought perfection, they fed themselves for perfection, they trained for perfection, and they achieved perfection; and so may we.

The reason that the Greeks developed a beauty of body of such wonderful excellence that its glory in effigy and statue has ever since remained the acme of human beauty, was that they respected no other kind. They admired and respected the fat, the scrawny, the flat-chested, stooped-shouldered, shambly, shuffle-gaited human about as much as we admire lunacy. "About as much" is said advisedly, since we have a sympathy for the lunatic, while the Greeks despised as monstrosities the over-fat, the cadaverous, and the misshapen, because they attained not to the ideal that they knew was realizable. With them it was much as it would be with us if drunkenness were less common among us—we would despise the poor wretch weak enough, or fool enough, to dethrone his God-like reason—his intelligence—and descend for the time to a level compared with which a warty toad is a very God for excellence. Think of the Greeks appraising the unbeautifully developed man or woman as we do the mentally dethroned, filthy, spewing drunk, and you will understand their achievement of general beauty of form. With us it is because drunkenness is a temporary surrender of our nobler human side to the primitive, bestial level from which we have sprung, not contemplated in nature's scheme, that we so despise it. With the Greeks it was because, in their conception, nature did not intend the unbeautiful form that they despised it. And, because Greek thought held the possessor of an unbeautiful body in such despite, and thus placed the responsibility upon the owner of such a body, the guiding thought of Greek life was not greed and gluttony and sensuality—the dominating thought-influences in modern life—but that chastity and love of beauty without which their general level of beauty appreciation and culture can never be attained.

It never occurred to those "barbarian Greeks" to look upon the human body as unclean, or filthy, or immoral and unfit for human eyes to dwell upon, and because of their veneration for what we "Christian prudes" have defiled by our filthy conceptions they rose to a grandeur of conception and chastity of thought and sex relation that was surely cherubic, as compared with ours.

When a Greek male saw the undraped curves and rotundities of the female form, no unholy fire kindled in his pupils nor mantled with mounting color his cheeks, but a softened glow of warmth suffused him and widened his admiring glance and set him as chastely tremoring as we who are sensitive might tremor over an orchid or a rose. That was because, in his conception, only divine beauty, the antithesis of the vile, inhered in the female form.

It is not needed to point out the comparatively more lecherous conception of modern so-called "Christian" peoples who are shocked at the exposure of a "flapper's knee."

Surely our conception must be all wrong when, upon the accidental view of a generally draped portion of a human form, we are stimulated to think unchastely. And it is easy to understand how our wrong conceptions have been derived.

We have wrongfully conceived ourselves as bodies possessing souls, whereas just the reverse is true. We are souls empowered to build for ourselves temples—bodies—out of the "dust of the ground."

The foregoing statement is not merely figurative, it is literally true. In this both science and Genesis agree.

Scientists once thought they would prove the impossibility of a God by the wonder-working powers of chemistry; but science has proved instead the necessity of a God to explain itself. Chemistry has been able to determine the elements of which the body is made, their number and their relative proportions to each other in the body structure. These elements have been brought together in correct proportions and under every conceivable circumstance favorable to the development or generation within them of some kinetic vibration, some manifestation of energy resembling life, but the mass has remained as cold, inert and dead as the blood-warmed body which has thought, and thrilled, and felt, is, when its animating spirit, its Essence of Life, the divine spark, has fled. The mass lacked something beyond the reach of microscope, or telescope, or polariscope, or stethescope, or chemistry; something beyond every experience of every sense, or suprasense perception, beyond every possible reach of even the imagination of the most imaginative of men to concrete, appreciate and to begin to understand.

It is no longer science which blatantly denies God. It is science which, with bared head and naked feet, to-day stands with downcast eyes and in the attitude of thrilled devotion before every closed portal of the invisible universe. It is science that at last bends the knee before that mist-enveloped holy of holies, the Creative-Intelligence-containing body of man, and admits to its inmost self that here, enshrined within its sacred temple, beyond all access by human faculties, reposes and functions the soul of man—the Spirit Divine—a Spark from the Infinite—God.

Perhaps science does not use the older word from God. Possibly science will say Force, or Intelligence, or use some other modern coined jargon to describe this elusive but all-pervasive power; but why dispute about a name which, after all, cannot change the fact?

But Genesis says God made man in his own image out of the dust of the ground, then breathed into his nostrils the breath of life and man became a living soul. How does this, you say, agree with science?

Science says life began, that is the first living forms appeared, in the intertidal mud beaches of the warm primordial seas. Those first living things consisted of the very same chemical substances as those which formed the ground of the warm mud beaches in which they made their home.

Those earliest living things consisted of a single microscopic cell enclosing within itself a Life Essence which distinguished it from the non-living things from which the earth was made. When this Life Essence departed from the little one-celled body it soon returned to the same non-living state as the other non-living matter of the earth. Therefore, it is evident that the body of the little one-celled living thing depended for its existence upon some other thing than the earthy matters out of which it was made. In other words, it had a maker, and that maker was the Life Essence or Spirit of Life which lived within it and kept it alive. That Essence of Life is a part of the All-Life, a spark or ray from the all pervading Power of the universe—a part of God. That Essence of Life has power to build its earthly body out of the very substances of which the ground is made. Every living thing has that power. The Essence of Life in vegetable living things has the power to take those substances direct from the ground through their roots, and build up for its habitation vegetable bodies. Animal living things obtain these mineral or earthy substances by eating those vegetable bodies, but they are only eating the "dust of the ground" in organic form, none the less, which is proven by the fact that when animal bodies are forsaken by the Essence of Life they die and soon decompose into earth-matter, the "dust of the ground."

What is true of that little, single-celled, living thing away back millions of years ago in the intertidal mud, is true to-day of every living thing, including man. The Essence of Life—God within us—builds our bodies out of the "dust of the ground," therefore it is true, as Genesis says, that God made man in his own image out of the dust of the ground, and he continues so to make him.

But what about breathing into his nostrils the breath of life and man became a living soul? The answer is that, when a child is born, while at the moment of its birth it may be said to be alive, it has only a sort of vegetating life, lacks individual entity, its life is dependent upon another life, the life of its mother, and its body has been built up out of the earthy substances of which bodies must be made, which floated in her blood. Unless some other thing happens, it never will have an independent life of its own. That other thing is, it must breathe. Unless it breathes it never will be a "living soul."

One inrushing breath, however, through those tiny nostrils and behold! in the very view of human sight has been enacted the most stupendous accomplishment in all creation, "God breathed into his nostrils the breath of life and man became a living soul."

Stand at the bedside, as we physicians sometimes must stand, when a new body has just been delivered into this world, all warm as life, as living flesh, but motionless; limp and inert. Recall for a moment the physician's anxiety as he manipulates that motionless little form, anxious for that little gasp and the coincident little nervous thrill that tenses and moves throughout that, till then, lifeless flesh with its first kick and cry. Recall the cold chill that gathers about his heart as that gasp and cry and kick delay their coming and the dead lump that gathers in and cramps his bosom as they refuse to appear and he has to announce "the baby is dead," and you will then know truly that that first inrushing breath is the very "breath of life" required to transmute that fully-formed, mother-developed, mother-warmed, human-like, inanimate little body, into a body animated by a living soul.

Now note, from the moment of conception the Universal Power, which we may name what we will without changing its nature—therefore we may name It God—was at work deep within the body of the mother-to-be, multiplying the cells of the fecundated ovum, just as It multiplies the cells of a germinating seed, by division of themselves into ever more and more cells, thus constituting the beginning of body growth. After a time that same Power—God—began to transform those multiplying cells and give to them special functions, some of them becoming kidneys, some of them liver, some of them brain and nerves, some heart, lungs, etc., until the entire body was fully formed, and all the time this little body, being developed by the division and multiplication of its cells, was really being built out of the "dust of the ground," obtained by its mother by eating of the vegetable body forms which had been built up directly out of the "dust of the ground," and taken out of the mother's blood by the selective power which its indwelling builder—God—gave to its component cells; thus God did make the body, the body of man, "out of the dust of the ground." But up to the time of birth that body had no independent life of its own, yet in the fullness of time it was cast forth from its mother's body upon which it had been dependent. If it was not to die but to become an independent life, it must obtain the great essential of all life, oxygen, therefore the Essence of Life within its body, its builder—God—stimulated that little inanimate bundle of organs to do what in its nine months of cell multiplication it had never done before, breathe, therefore in literal fact, "God breathed into his nostrils the breath of life and he became a living soul."

We thus see that, literally, it is true, as Genesis states, that God made man in His own image (creative intelligence), out of the dust of the ground and breathed into his nostrils the breath of life and he became a living soul.

This, however, while interesting enough, would not necessarily thrill the human understanding, nor will it until we grasp its cosmic significance, which is the tremendous responsibility thus placed upon us by the scheme of nature, viz., since the Living Principle, or Essence of Life, in us—the real we—is of the Infinite, or God—and that real we is the builder of our bodies out of the "dust of the ground," we must become responsible to the Infinite Source—God—for the perfection or imperfection of the building. Because we are held responsible, it must be in our power to make it a perfect and beautiful temple built of perfect building materials, capable of withstanding years of strain and stress, or a ramshackle affair built at random out of any materials that come to hand, the most appealing materials being those which lessen our effort to prepare or which appeal more to our senses than to our sense or understanding; a structure that cannot thrill us, that constantly needs repairs through tumbling into decay or disease, and that cannot last for any great length of time.

And, if we are responsible for the building of our bodies, we are responsible also for the keeping of them in a state of beauty and good repair, free from premature decline and decay—sickness and disease.

Think a moment what this means. Would the Universal Source, the Supreme Intelligence, the Infinite Originator of All Things—God—hold us responsible for the building and keeping of our bodies, if they could not be built perfectly and kept in perfect repair—made beautiful and kept well? Impossible!

And if these bodies may be beautiful temples, should be beautiful temples, there must be some means of discerning the materials out of which such temples may be built and the plan by which to build them, thus enabling us to fulfil our responsibilities.

It is the business of Dietetics to discover what perfect body-building materials are and how they may be obtained.

With the foregoing view of the human body and human responsibility concerning its perfection before us, we do not wonder at the manner in which the intellectual old Greeks venerated and idealized this temple of the human soul, lending their noblest and loftiest thought to its perfect development, and their sublimest devotion to its beautifying care.

And, when we appreciate the supreme grandeur of their conception, are we not all but overwhelmed at the lowly estimate, the degrading disregard which we have maintained towards this, potentially, the sublimest of all the animated structures of the entire cosmos? If not, surely this proves better than any other thing can, how far superior to us must have been those ancient "barbarian" Greeks.

The Greeks idealized the human body; we treat it as little better than an animated garbage can. They gave it veneration, devoted care, their most penetrating thought, we contemn it, think of it only to gratify its desires, decorate it with tinsel "finery," cosmetic it and camouflage it to cover up its symmetrical deficiencies resulting from our sensualism and our lack of structural care and responsibility and call in the repair man—the physician—to patch it up, not to rebuild it in most cases, just to plug a leak here, replace a shingle there, resolder a broken brace or rehang a sagging door. Their bodies thrilled them as we are only occasionally thrilled by the contemplation of some sublime vista, edifice, spectacle, statue, poem or melody. Most of us are thrilled by our bodies about as much as a potato or a cabbage may be supposed to be thrilled by its body. In the place of thrills, we have the pains of Divine lashings in chastisement for our neglect to care for and adorn and beautify our bodies through the inadequacies of what we put into them as building materials, foods cast into the matrix of our bodies with no more thought in their selection for their high calling in the building of a temple of soul than that they appeal to one or more of our material senses, sight, taste or smell.

"Most of us," as used in the preceding paragraph, unfortunately, cannot be made to apply to the laity only. To one who has thought to any extent upon this subject, especially if he has coupled investigation with his thinking, it is most astounding that physicians have not, with rare exceptions, realized even in thought the potentialities in the human body for the development of beauty, nor have they even dreamed of the extent to which normalizing foods and a systematized regime of living may enter into the effloration of that body beauty. In fact, until very recently, physicians, with the exception of a "crank" here and there and a big man occasionally at the top of the profession, have been inclined to look upon the doctor who leaned toward this kind of thought as having a "bug," and they have treated him as they do any other kind of a "bug." It has been easier for them not to shift their point of view and to allow themselves the luxury of cursing the "cults" and "isms" who have been taking in a lot of "good money" working along these very lines.

A whole article might be written upon the advantage which might accrue to our profession if physicians could be brought to view themselves as builders and consultants in the science and art of building stately human vessels that could be counted upon to sail the stormy seas of human life direct to the last port of call with little sign of scar from wind or wave, rather than, or at least in addition to, being simply repairers of human derelicts, leaking hulks, submerged almost to sea level with the accumulated impedimenta of disobedience to every rational building law. One great advantage would be that it would draw the teeth of the "cults" and ensure to our profession the high destiny of leading humanity out of the wilderness of the omnipresent sickness and disease we see afflicting civilized mankind; afflicting civilized mankind to a degree unapproached among the simple, nature-following races, and guarantee to our profession that permanence as a human institution which, otherwise, it cannot hope for, since it must yield to some wiser institution which will yet prove to be the Moses of civilization and lead us into the promised land of that better body development that should accompany the wonderful advances in hygiene and sanitation which civilization has brought to our human kind.

The ancient Greeks, who probably knew little or nothing about hygiene and sanitation, as compared with our modern standards, surely demonstrated in their own beautified persons that there are discoverable principles of living which can be depended upon to develop a healthier, more symmetrically proportioned, more intellectual and more spiritual (not meaning sanctimonious) race than has yet appeared in modern times.

Even savage races can prove to us that there are principles of living that can build them better physically and keep them far freer from disease than are the civilized races.

Besides, there are ever-increasing thousands of men and women in civilized lands who, by following non-medical methods, are showing that even among civilized races the body can be adorned by greater symmetry and grace, with greater evidences of power and health, than are usual among their civilized kind. These men and women have found the living methods of the ancient Greeks, at least in part. Those methods of the Greeks ought to be an open book to us, but they are not. Shall we sufficiently unshackle our minds from the influences of our traditions at least to try to open that book? This department will attempt to aid those physicians who would like to be more than human repair men, to become at least aspirers to the body-building knowledge attained by the ancient Greeks, at any rate as to the building materials to be used, without which their type of body can never, never be built.

BASIC PRINCIPLES

This is a chapter which the reader who is bored by *reasons why* may as well pass by. But such may as well pass up the whole book.

There are those, however, who must ever know the eternal principles underlying any conclusion before such conclusion can be accepted. And they are right. Moreover, they are the only kind of readers who are worth writing for. It is, therefore, for such, and such only, that this chapter is written—that this book is written, in fact.

It is natural, then, that I should wish that all my readers were this intellectual type. Only such conclusions as are accepted because they are based upon an everlasting principle are likely long to be held. Those who would accept my mere statements as facts to-day will quite probably accept statements of the opposite import to-morrow. The former believed because they doubted, questioned, then learned to know. The latter simply accepted; they do not and never can really know.

Before going on to discuss the ways in which a human body must conduct itself in order that it may be permanently well, always free from disease, and die in very advanced life, as the leaves and flowers die when they have lived out their full life-span and retire to Mother Earth again for rest, I want to try to make plain certain of the fundamental principles upon which the human body is organized in order that the reader may understand something of the engine of which he is the engineer.

The engineer who does not know the cause of his engine trouble will not be in a very favorable situation for correcting that trouble. And an engineer who knows the causes in general of engine trouble will be in a position to quickly locate, understand and correct his engine trouble, and thus remove it.

Moreover, an engineer who understands the basic principles of engineering will be more prompt in understanding all the causes from which engine trouble can come; therefore he will be more capable in removing such causes, thus not only curing the trouble, but, probably, preventing its recurrence or return.

So, too, the human engineer who understands his engine, the human body, will know best how to prevent its getting out of repair.

Like the mechanical engineer, the human engineer who does not know the cause of his human-engine trouble will not be in a very favorable situation for correcting that trouble if and when it comes. But the human engineer who knows the causes in general of human-engine trouble will be in a position to quickly locate and correct such trouble by removing its cause.

Similarly, the human engineer who understands the basic principles of human engineering will be more prompt in understanding all the causes from which human-engine trouble can come, therefore more capable in removing such causes; thus not only curing the trouble but probably preventing its recurrence or return.

Manifestly it will be impossible to present a complete survey of the basic principles of human engineering within the space of one book. How utterly impossible, then, to do so within the short space of a single chapter.

There are, however, a few broad, general principles concerning the basic plan upon which the human engine is built, and the laws which govern its perfect functioning, which I shall attempt to present as a guide to the human engineer, the intelligent comprehension of which will assist said engineer to keep his engine free from trouble or quickly get it out of trouble and into good repair and running condition, if trouble comes.

I shall now drop the word "engine" and use the word "body," the former word having served its purpose in showing the analogy between the mechanical and human machines and their functions.

The human body is the result of a Life Principle manifesting in and through matter.

The human body is an aggregate of a vast multitude of unit lives or bodies which we call "cells."

This vast aggregation of cells, under the directing power of the Life Principle, was evolved from one original cell. The method of their multiplication is that of cell division. The original unit cell divides and becomes two cells; these divide again and become four; these eight and so on under direction of the Life Principle.

But, while the cell is under the control of the Life Principle, the activity of the Life Principle is itself controlled by plans laid down by the Cosmic Architect or Creator. Not one hairbreadth can it vary that plan without resultant havoc to the bodily structure. *Reader, note this well!*

The laws governing the Life Principle are many and varied. Some of the more important ones are as follows:—

(1) The Life Principle must build the body in conformity with a pre-established mould or design out of the dust of the ground, that is, out of material substances in or pertaining to the earth.

(2) The human Life Principle has not the power to build the human body up directly from the earthy matter. Only the Life Principle manifesting through matter in vegetable forms can directly build this crude earthy matter up into organic or living vegetable forms. The human Life Principle must then take this organized, earthy vegetable matter and change it back into its original, elementary forms, then rebuild these earthy elements into human flesh.

(3) The vegetable life forms had to precede all animal life forms in the order of creation to enable animal forms to live. Therefore, the animal life forms were adapted primarily to live off the vegetable life forms. This is as true of the flesh-eating animal forms, in the final analysis, as it is of the vegetable-eating animal forms, for if no animals ate vegetables all animal forms would have to die and disappear. The starting point of animal life must be the vegetable-eating animal. All animal life forms must have been adapted to be built up only out of the unchanged vegetable forms or of the unchanged flesh of other animal forms which have been built up out of unchanged vegetable forms. This must be true, since all animal forms, including the human, reached anatomical and physiological perfection ages and ages before man learned how to "improve" either his own foods or those of other animals, by cooking or refining from them some part which God had thought essential.

(4) Being adapted to live and build perfect bodies from entirely natural foods—foods just as they came from the hand of nature—must mean that perfect animal forms cannot be built up out of changed or unnatural foods. This is a matter of unalterable law. It cannot be changed in the most

infinitesimal degree without resulting in bodily disturbance to the animal concerned, to the extent of the attempted change.

(5) Age-long racial habits become fixed and have all the power of natural laws. Such habits can only be changed at the cost of peril to the individual or the race; the extent of the peril equalling the extent of the attempted change in the racial habits.

(6) The functioning or working power of all body cells, organs or parts increases with the exercise of intended function, or by carrying on intended work, up to but never beyond that point where exhaustion begins.

(7) Conversely, every cell, organ or body part grows weaker in functioning or working power in proportion to organic failure to exercise full functional power.

(8) Any vicarious action which substitutes or takes the place of organic function—that is, anything that does for a body cell, organ or part what it was and is designed to do for itself,—weakens that cell, organ or part and lessens its inherent power to perform its intended function—to do its own work.

(9) Nature tends to destroy and eliminate the unused, under-used, interfered-with or impeded function, organ or body part.

(10) Anything that opposes or delays functional activity tends to destroy functioning or working power.

(11) Anything that lessens the functioning or working power of any one body cell, organ or part, automatically lessens the functioning power of every other body cell, organ or part, through the circulatory (blood and lymph) and nervous interrelations which obtain between all the cells, organs and parts of the body.

(12) Anything that lessens the functioning or working power of any cell, organ or body part lowers the vital resistance of that body to the onset and the inroads of body-degenerative processes (disease).

(13) When every essential body cell, organ or other part is functioning perfectly, the body must be perfect; and a perfect body is immune from all disintegrating or disease-inducing influences. It cannot be or become diseased.

(14) Every essential body function is involuntary, that is, it is carried on independently of the will, through the body mechanism known as the reflex nervous system, which

initiates, directs and interrelates all body cells, organs and parts. Such involuntary functions are properly called "reflex functions."

(15) Reflex functions are always carried on in response to stimuli which reach the functioning cells, organs or parts from without. Access of such stimuli to the functioning cell, organ or part must always be *via* the conducting fibres of the nervous system.

(16) All voluntary functional activities in the body are also, primarily, dependent upon reflex activity, since if reflex activity ceased the body would immediately die.

(17) The more unimpeded or unhampered reflex functions are (by artificial interferences with nature's provisions for natural stimuli to contact the functioning organs), the more perfect must they be, therefore the more potentially perfect must the functioning cells, organs or parts of the body, become. As a result, the more potentially perfect must the functional activities of the body as a whole become, because the body as a whole increases its potential functional power by functioning or working as well as do its component cells, organs or parts. Thus the fundamental law of development or growth is effort, work.

(18) The most primitive and fundamental reflex stimuli are environmental contacts: body contacts with the sun's rays, wind, rain, fog, dew, heat, cold, all natural foods and drink, the earth itself. The most primitive of all these natural stimuli is the air. It is the first reflex stimulus the new-born child contacts. It is largely contact with cool air that stimulates the new-born child to breathe. It is inspired or breathed-in air that stimulates the heart to beat, and this in turn stimulates many other functions. Each new function set in motion acts as a reflex stimulus to some other function until the entire circle of bodily activities has been reached and stimulated, all traceable back to the primary reflex stimulus of the atmospheric air in contact with the sensitive terminals of the reflex nervous mechanism located in or on the skin.

(19) Since all reflex activities, and therefore all body activities, are dependent upon natural reflex stimuli, anything that interferes with reflex actions interferes with function.

(20) Anything that interferes with body function must interfere with vital resistance to the onset and the inroads of degenerative body processes (disease).

(21) Only natural reflex stimuli can induce normal organic or cellular function, the kind of functional activity that maintains and increases organic functional power and coincidentally increases vital resistance to degenerative processes (disease). In other words, only naturally-stimulated organs function normally.

(22) The converse of this law is also true. Artificial or unnatural reflex stimuli can only diminish organic functional power and lessen vital resistance to the onset and inroads of degenerative body processes (disease). That is, unnaturally-stimulated organs or body cells tend to be destroyed.

(23) Man was designed by his Creator to live in the open unhoused, his nude body exposed to environmental contacts—the sun's rays, wind, rain, fog, dew, heat, cold, the earth itself, etc., and to build and maintain his body by feeding upon the unchanged foodstuffs of nature, in themselves natural, environmental contacts; for foods and drink belong to our environment. Man lived thus for perhaps a thousand years, at least, to each year he has lived in houses and covered his skin with clothes, and eaten the foodstuffs of nature as they are altered by artifices of man in the presumed belief that these man-made changes are improvements upon God-prepared foods.

(24) Every body-part was designed for a purpose and to maintain itself in health and prevent its degeneration into a condition akin to, if not quite actual, disease, it must perform the function it was designed to perform. And the nearer it comes to exerting its full functioning or working power, short of beginning exhaustion, the more perfect, therefore the more healthy and resistant to disease, it must become; for, we must remember, a cell, organ or part gains in working power by working.

(25) Every perfectly-functioning cell, organ or part exerts a benign influence upon every other cell, organ or body part. The converse is also true.

(26) The brain and the muscles are most important organs of the body. As such, they were designed for very important purposes, with very important functions to perform. The laws just outlined apply to these organs. If they would be maintained in perfect health they must vigorously perform the functions they were designed to perform. This means that the muscles must work and the brain must think. It also means that the harder the muscles work, the harder

the brain thinks, short of beginning exhaustion, the more powerful and the more healthy and the less liable to disease do they become and the more do they promote health and lessen the danger of disease among the other cells, organs and body parts.

(27) Only natural living habits can produce natural, that is to say normal, animal growth. Therefore, only natural living habits can produce a normal, that is to say healthy, animal body. And human bodies are animal bodies and subject to the same law that governs all animal growth and health.

(28) The manifestations of life are all basically reflex. If the body's reflex mechanism were destroyed, life would be immediately destroyed.

(29) There are five systems or chains of reflex manifestations or activities in the animal body, each originating in a separate and different source. When a child is born it does not at once breathe. The accumulation of CO_2 in the blood and contact of the skin with the cool environment stimulate the breathing reflex, and the child takes its first breath. But that inrushing breath, a reflex response to skin contact with the environment, is itself followed by a long chain of reflex activities, without which the body cannot live, all going back, however, to the skin as the starting point of the chain.

(30) The second act of the new-born is to cry and kick; a child's way of taking muscular exercise. This muscular activity sets up another set of reflexly-controlled functions, in the absence of which the child would not develop normally. These reflexes have to do with heart and lung functions, with digestion and elimination, and with many other vitally important body functions.

(31) The third act of the healthy or normal new-born child is to sleep. While sleep is in response to the stimulus from accumulated fatigue poisons in the blood, and is chiefly for the purpose of eliminating these poisons during the time the body is passive and no fatigue poisons are being formed, still sleep itself initiates, controls or directs a whole chain of functions, just as do the skin and muscles.

(32) The fourth reflex act of a normal new-born child is the taking of natural food. The taking of natural food sets up, directs or controls another most important chain of reflex functions, without which the child would not develop normally—would not, in fact, live.

(33) The fifth chain of reflex functions pertains to the mind. All of the foregoing chains are brought into activity within the first few hours of life. A little later on, however, the fifth chain develops, the mental or emotional chain.

The mind has great power of initiation and inhibition; of direction and control over a whole chain of body functions. In other words, it is a great reflex generating centre, similar to, yet in some important ways different from, the others, but more especially from the skin, muscle and food chains; which differences will be discussed later.

I, therefore, call the skin; the muscles; sleep; the gastro-intestinal or food canal; the mind, the five Primary Reflex Generating Centres, from each of which separate chains of vital, or very important, reflexes flow. Each chain is set in operation by natural stimuli: the skin by contact with the physical environment; the muscle chain by muscular contractions; the sleep chain by accumulating fatigue poisons; the food chain by the taking of natural food; the mental chain by thought, or mind reactions to external stimuli.

These five chains constitute the body's Defensive Mechanism. If these five chains of reflexes governing all the functions of the body are perfect, the functions they control or direct will be perfect. And the whole five chains will be perfect if they are allowed to contact their natural stimuli, are not allowed to become depleted by frequently contacting unnatural stimuli, and are never allowed to function beyond the point where exhaustion begins. And when these whole five chains of reflexes are perfect, the body will be physically perfect. And when the body is physically perfect it is completely immune from disease.

This chapter is, to my mind, worth reading through several times before going on with the reading of the rest of this book. It will also be a great advantage to the general reader to return to read it several times as the reading of the book progresses. For if these principles are not well understood and kept in mind, the health philosophy of the book cannot be appreciated, and its reading will be in vain.

CHAPTER ONE

THE SERIOUSNESS OF LIVING

How little we appreciate the seriousness of living. That is, how little we realize that living is a serious business, and, being so, the living method that we follow becomes of great importance.

On the physical side of living, what is natural is right; therefore, what is unnatural must be not right, or wrong. To the extent that any living habit approaches the natural, that which nature or God intended us to do, are our living habits right. To the extent that they are unnatural, our living habits must be wrong, because they are what God did not intend.

Can there be any difference in the wrongness of a mere physical habit and the wrongness of an incorrect mental or spiritual attitude towards the eternal principle of righteousness? Not to my way of viewing the matter. An unright or unrighteous act is so because it is contrary to what God intended in any given circumstances. If God commands us to love our fellowman it is a wrong act, an unrighteous act, not to love him, and it is unrighteous because it is opposed to God's intent or will. If God commands us to do some physical thing, say to walk, and we refuse to do that thing, do we not oppose God's will, go contrary to his intent, just as definitely as we do when we refuse to love our fellows? Most assuredly we do. And surely opposition to God's will cannot differ in degree. We either do what God's desire is that we shall do, and are blessed accordingly; or we refuse to do what God's desire is that we shall do and we are unblessed—made to pay a penalty for our refusal, accordingly.

Naturalness is our only guide to righteousness in our physical living habits. Yet it would almost seem as if we civilized peoples go out of our way to live as unnaturally as possible.

Some of us have deemed life is a serious business because it is the vestibule or avenue of approach to a future life; but that the way in which we live it in a physical sense has a tremendous effect upon our spiritual attitude towards life few have understood, and almost as many have been unwilling to understand. This is, or has been, as true of the clergy, the physicians, the scientists, and philosophers, as it has been of the most unlettered and uncultured.

In our living habits we have preferred, and still almost always we prefer, being governed by wish and desire rather than by "ought" or "should." Wish and desire have no natural relationship with right: "ought" and "should" are inseparable from right, the right thing to do, whether morally or physically.

He who is governed by wish or want—Desire—may have, generally does have, a bitter day of reckoning. The omnipresent debacle of human disease—appendicitis, 'flu, cancer, tuberculosis, pneumonia, and the almost countless number of less terrible diseases—surely proves this.

On the other hand, he whose living habits are governed by "ought" or "should" must reap a daily and ever-increasing reward, proven by the ever-growing number of persons in civilization who, by reformed living habits, conforming to "ought" and "should," have passed beyond even the fear of the reach of disease, of whom the writer happens to be one. And surely it is a consummate reward.

We are accustomed to apply this rule of "ought" or "should" to the spiritual side of life, but without doubt it can be applied with as great positiveness to the physical side of life. Indeed, how can one progress spiritually who neglects the God-established laws of physical life? For God's laws are laws, whether what we call spiritual or physical, and, as such, they were intended for our guidance and they are intended to be obeyed.

We are accustomed to contemn and neglect and scourge the body as a drag upon the spirit. The truth is that it is only the neglected body that is a drag upon the spiritual aspirations and spiritual development of men. The soul cannot soar, the spirit cannot greatly aspire nor attain to very intimate contact with the All Spirit, if it is housed in a sodden body, poisoned with the toxins generated by disobedience to every God-established law of bodily life. The spirit housed in such a body is apt to be a dark spirit, one satisfied with ritualism and form.

A body governed by wish and want—Desire—is apt to be a sensual body because it is a sense-governed body. The spirit is earthbound that is housed in such a sense-governed body.

However, in recent years the light has begun to break through the clouds of ignorance and misapprehension that have for so long obscured the God-given laws of bodily health, through the operation of which God did intend that mankind would be immune from disease.

It seems strange that for almost two generations it has been recognized by science and the interested stockman or farmer that the quality or kind, as well as the quantity, of an animal's food, have a great deal to do with the quality of the animal; that the quality as well as the health of an animal depend, aside from the influences of heredity, almost entirely upon the character or quality of its foods, and what may be termed animal hygiene. To get the best out of an animal it must be treated according to certain known rules. When these rules are implicitly obeyed certain definitely beneficial results will surely follow. These rules are not made by man or the animal, but by God. We call them natural rules or natural laws. But natural laws are made to be obeyed, and they will be obeyed. The stockman profits by obedience to them. All very simple; all very natural; just what we expect when animals are concerned. But we rarely apply these rules or natural laws to ourselves.

If we make a survey of the races of mankind inhabiting the earth, we find that those simple races that we call savages are almost, if not entirely, free from diseases which play such havoc with civilized races: if they have not contacted civilization, and been influenced in their living habits by that contact, through taking on civilized people's habits. It is well known that savage races may contact civilized races and yet remain disease free, so long as they do not take on civilized habits, especially civilized people's food habits.

If we make a survey of the animal life of the world, we find that only the animals that are to some degree controlled by civilized man are diseased.

It, therefore, appears that wherever animals, human, avian or brute, are free to live their lives according to the health laws of their Creator, that is, are free to live natural lives, there is no disease. This is particularly true of instinct-guided animals. Disease, therefore, appears to be associated with, and dependent upon, some institution connected with civilization. And those institutions of civilization which distinguish and set apart the races of mankind known as civilized from all other animal species may be conveniently called the habits of civilized races. If, then, we can discover those habits of civilized peoples that differ rather widely from the habits of all other living things, is it not at least likely that we shall discover in some or all of these the cause of civilization's omnipresent diseases? While that seems a most reasonable inference, let us not dogmatize but simply affirm that it does seem likely, then proceed to investigate further.

CHAPTER TWO

ANATOMY AND ENVIRONMENT, MAN'S LIMITATIONS

In the preceding chapter it was pointed out that to make the best of stock animals they must be cared for according to rules. Those rules are based upon certain well-recognized natural laws, laws that will suffer absolutely no interference with their operation without striking back.

Is it not strange, then, beyond all understanding, that it is only recently it has begun to dawn upon an observer and thinker here and there that these same principles, these same inflexible laws, apply with equal force to the human animal? Nor is it the ignorant alone whose minds have been, and are, closed. There are masses of civilized people, supposedly educated and cultured: college professors, physicians, dentists, lawyers, clergymen who have not yet taken in this thought. These men still believe that the laws of nature, as regards human living habits, can be violated and these laws not hit back. They believe that the thousands and thousands of years of simple living habits followed by our human ancestry, before civilization appeared, has had no effect in binding us forever to similar simple habits. And yet these educated people must know that long-established racial habits become laws and have all the effect of other laws of nature, from which we cannot break away except at the price of peril to the individual or to the race. These men must know, as the prologue to this book indirectly points out, that the design of body that man possesses is what it is because of the physical environment in which it was developed and for which it must have been designed, by the Essence of Life. This must be as true of the structural part of man's body as it is of its design. Those materials out of which it was built in that long, long ago were drawn by the Essence of Life from man's physical environment. The Essence of Life, the Living Principle without which no animal body can become or remain alive, designed that body to suit its physical environment, and so adapted it to its environment that it cannot be built out of other than the materials natural to that environment.

Note that word *natural.* It is the keyword to the enigma of the prevalence of human disease where there should be abounding health.

No mechanism can possibly be designed to effectively produce energy while operated by two opposite kinds of energy-developing substance. Energy can be developed from wood, coal, oil, water, wind; but a different kind of mechanism must be provided through which each of these will yield up its potential energy. Even different kinds of coal must have adaptations in the furnace which releases their energy, if efficiency and economy are of any concern.

This principle is universal, therefore it applies to animal structure and design.

Every physical body is a mechanism for the developing, storing and the releasing of energy. There are hundreds of types of such energy-developing mechanisms. Each type is adapted for the utilization of a certain kind of fuel. Food is the fuel of all of these mechanisms. It is absolutely essential for the efficient operation of each such mechanism in continually producing energy that it be supplied with the kind of fuel, or food, for which the Essence of Life that evolved it has adapted it. I want the reader to get that point fixed in the mind so that it cannot be lost sight of under any circumstance. Get it fixed as a practical fact and not some merely abstract principle that does not apply to us. It does and must apply to each human as an individual and apply collectively to the race as a whole.

Each type of living body was evolved out of its environment, and, therefore, evolved to suit or adapted to that special environment. Its energy-producing fuel or food is native to that environment. It was evolved as a body by subsisting upon that kind of food, and its organs for the utilization of food were specially adapted for the use of such foods. The body and its foods were adapted to each other. The body was adapted to no other kind of foods. By no possible chance could it do as well upon some other kind of food. All other kinds would be unnatural to it. The kind of food upon the use of which its digestive apparatus, its whole anatomy of nutrition, was developed was *natural* food or fuel, and by no possible chance could it function so well by the use of some other kind of food or fuel. The fact that its animal anatomy for age after age made use of that certain kind of food established the anatomy of nutrition of each species so that they could not efficiently use any other kind of fuel or food. Their kind of foods could be properly digested only by their kind of a digestive mechanism. But just as certainly their kind of digestive mechanism demanded their kind of food.

But the ancestry of every life form, or living body, now extant, handed down their anatomy of energy production, their anatomy of nutrition, to their descendants. Since the ancestry were bound to the use of certain kinds of foods or fuels, because of their anatomy, so also must be their descendants who have inherited their ancestors' energy-producing or nutritional anatomy. There is no way around this fact and there never will be.

Is it possible that, because civilized mankind has sought a way around, the disaster of human disease has overtaken the civilized races?

Let us merely ask that question here, but do not yet attempt to answer it. Let us continue our enquiry.

CHAPTER THREE

THE HUMAN BODY'S LIMITATION—FOOD

In chapter one I tried to show that human disease is, in all probability, due to some institution or living habit of civilization. In chapter two I showed that every living body is adapted to a certain type of food fuel, upon which it can efficiently operate, and only upon that type of food fuel. This led to the query whether it is possible that it is because civilized mankind has sought a way to circumvent the law of nature which controls this adaptability between the organism and its foods that civilized men have met the disaster of human disease.

I have pointed out that food is the fuel of the living body. But it is more. Food is also the building material of human bodies. Every human being knows enough of building conditions or principles to know that a building cannot be any more perfect than the building materials used in its construction. Some or most of the materials may be perfect; but, it may be taken as true, no structure is ever better than the most imperfectly adapted building materials used in its construction. Weakness of the entire edifice is contributed by weakness of a spot, and the weakest spot determines the durability or strength of the whole—just as a weak link in a chain is the measure of the strength of the chain. Everyone immediately recognizes the truth of this principle when applied to familiar building conditions. It seems strange that even educated and intellectual people do not apply the principle universally. Applied universally, it must extend to animal bodies, human as well as brute.

One reason for not applying this principle to human bodies is that most people, even many physicians, do not seem to realize, except in an academic way, that human bodies *are built,* just as definitely built as the skyscraper or the great cathedral that we can witness the building of before our eyes. We all ought to try to realize this fact and adjust our minds so as to see with the mind's eye this building going on. We would then understand, as we must understand before we can expect to know the relation of human habits to human health or disease, that it does matter, and matter most vitally, what we eat, since it is what we eat that determines in a very large way the perfection or imperfection, the vital resistance or the non-resistance of our bodies to those influences that tend to disintegrate and destroy it.

Of course, wrong food is not the only disintegrating influence, but those others will be considered in their proper place.

Now that the reader has tried to mentally visualize the body as a mechanism burning up food to generate for itself bodily energy and warmth; also as a physical structure being built up out of those same foods, he will be prepared to appreciate the importance of those foods that serve such vital purposes being furnished to the bodily mechanism in their natural or nature state as nearly as that may be.

The reader must remember, in this connection, that long-continued racial habits become laws; also that for many ages before civilization developed mankind lived upon foods just as they came from nature's hand—natural foods. This makes it absolutely necessary that we use natural foods or we are breaking the food-habit-law, established by ages and ages of use of such foods by our forebears. If we do not use natural foods, we are supplying to our bodily mechanism foods that are in some way changed from the kind of building materials used by our forebears during those ages when they were developing our type of body. And, if we use foods thus differing, we are using foods that are not properly adapted for use by our bodily mechanism. It must be that our forebears evolved a bodily mechanism adapted to function upon the kinds of food materials that mechanism was compelled to make use of. This being the case, it is equally certain that the bodily mechanism they evolved by and for functioning upon that kind of food—foods just as they left the hand of nature—was not and could not possibly be adapted to function normally upon any other kind of foods.

We thus see that, both by bondage to the law of racial habit and by evolutionary development and adaptation of our bodily mechanism, we are compelled to use natural foods, that is, foods changed in no essential quality from the way in which they are supplied to us by nature.

If civilized peoples do thus use natural foods, then it cannot be to the food institutions of civilized races that they can trace those departures from nature's laws for which disease is the penalty.

If civilized peoples do not use natural foods, however, if the foods of civilized peoples are changed from the condition in which nature supplies them, then we have a right to feel certain that we have located at least one civilized habit that must tend towards body degeneration, organic strain and disease.

We have all the more right to believe this when we take time to assure ourselves of the fact that all those animals, including savage mankind, which live simple, untrammelled or unimpeded lives, and along with their other simple living habits eat natural foods, foods that are changed little or not at all from the way in which they come from nature's hand, are free from disease.

What, then, are the facts concerning the foods of civilized mankind? Are they natural or unnatural?

First, let us decide what are the chief foods of civilization, then we can easily determine their naturalness or unnaturalness, and, from this finding, determine whether they contribute to health or disease.

Classified according to their preponderance in the dietary, they would stand thus:—grain foods, flesh foods, potatoes, milk, eggs, sugar, preserved foods, vegetables, fruits. In a vast portion of mankind, supposed to be civilized, milk would hold a much lower place than I have given to it. As we look at that list we are compelled to admit that every item is a natural food, in the sense that it is not an artificial food. If we stopped here, we must conclude that civilized people's foods are in no essential way responsible for the omnipresent diseases of civilization. But we dare not stop here. Before we can stop, we must enquire what is the method of preparation of those foods for use in the body before they are eaten. Do these methods in any material way affect the character, alter the quality, of the foods?

Ah! this food question becomes interesting. So interesting that I must give its consideration a few chapters all to itself.

CHAPTER FOUR

WHAT IS FOOD?

Food is any substance which, when taken into the body, builds its tissues, repairs its cells, energizes it, furnishes it with animal heat and vitalizes it.

The last clause is the real corner stone of this definition. Most definitions of food leave it out, which is like describing a pin and leaving out all reference to the head and point. The most important parts are left out.

The importance of this part of the definition lies in the fact that if we do not eat foods that vitalize us, foods that themselves possess vital principle or life that they can transfer to us, we can live and be healthy only so long as our inherited fund of vitality lasts, and then we crash; or it may be only that we gradually depart from the normal into abnormal health and chronic suffering and disease.

Having defined a subject it is advantageous to classify it, when that is possible.

For our practical study purpose it will be advantageous to disregard all reference to the scientific classification of proteins, carbohydrates, fats, etc.

There are, however, two very important classifications which it is necessary to keep always in mind.

First—Acid forming foods and alkali-forming foods.

Second—Natural food and denatured foods.

The first classification is important for the reason that unless eighty per cent. of the volume of our foods is alkali-forming, i.e., form alkalis in the blood, lymph, etc., we shall find ourselves accumulating acid residues in our blood and cellular interstices, so-called acidosis. These acid residues are cell irritants and sooner or later destroy cell function and initiate disease in the organs composed of cells.

It will be very evident that we have here one very potent cause of the omnipresence of disease and premature deaths in civilization, since it is demonstrable that ninety-eight per cent. of the diet of civilized people is acid-forming and stores up acid residues in the blood, lymph and more solid tissues.

It is difficult for the layman, and also for the physician who has had no training in dietetics, to appreciate the difference between acid and acid-forming and the similar difference between alkaline and alkali-forming. Since this distinction is important, I shall attempt to elucidate it. "Acid" refers to a substance which when brought in contact with a chemical reagent will show an acid reaction. For example, an acid solution, regardless of its color, will turn red litmus paper blue, a proof of its acid nature. Acid- or alkali-forming, on the other hand, relates to what is formed out of any substance after it has been for some time in contact with the digestive fluids.

The subject will be more easily understood by considering the citrus fruit juices. Take orange or lemon juice. Either brought into contact with a chemical reagent will give a strong acid reaction, yet these are among our very best alkali-formers.

The explanation of this procedure is as follows:

The acid present in citrus fruit is citric acid, but this is never present in a free state. It always is present as a salt of citric acid, which means this acid has combined with an alkaline substance to form another substance quite different from either, a soluble salt. The substances with which the citric acid has combined are the alkaline minerals, sodium, potassium, calcium, magnesium, etc. When these juices are taken into the digestive tract they are broken down into their component parts, free citric acid on one hand and free minerals, calcium, sodium, potassium, etc., on the other. The acid element being freed soon unites with oxygen from other foods, or from water, becomes oxidized and disappears in the sweat, urine, breath, as water and gas, leaving the mineral alkalis behind. But these do not remain free. Almost at once they form new combinations by uniting with carbon from the starch, sugar or fatty foods and again become soluble salts, bicarbonates of calcium, magnesium, sodium, potassium, etc., and as such are taken into the blood, and these are the normal alkalis of human blood, formed out of strongly acid fruits. These fruits, therefore, are called "acid", but are alkali-forming, i.e.; they form into alkalis *in* the body, although they are acid *outside* the body.

The second classification is important for the reason that it is only from vital foods that our vital resistance can be maintained.

Its bearing upon the health of the human family inheres in the fact that to be and remain vitally resistant, eighty per cent. of the volume of our foods must be natural and vital, or living foods. This means that if we divide our foods into ten equal parts eight of these must be alkali-forming to enable us constantly to resist disease. But in the diet of civilization only one and a half to two of those parts are alkali-forming, thus favoring an accumulation of irritating acid residues in the blood to irritate and depress the cell units that build our vital organs, thus disturbing the functions of our organs and in the end destroying the organs themselves.

Is it any wonder, when we consider these two food errors of civilization, that disease and premature deaths are rampant and omnipresent in civilization? Should we not rather marvel that the human body is endowed with such a superabundance of vitality that often it can resist these onslaughts upon its natural defences for many years?

See, then, that eighty per cent. of the volume or bulk of your diet is selected from the foods listed as alkali-formers in chapter nine of this book. See also that eighty per cent. of these are changed in no essential way from that condition in which they come to us from the Creator's hands. If you do not, or will not, do not complain or wonder why the inevitable sickness and disease arrive, as a penalty for opposing the health laws of our Creator as they relate to our foods.

CHAPTER FIVE

THE FOODS OF CIVILIZATION

In considering the quality of the foods used by civilization it will facilitate progress to a little more comprehensively classify them than was done under the so-general headings in the previous chapter.

Grain Foods	Flour and its products, bread, cakes, pastries, puddings, etc. Breakfast cereals. Rice.
Flesh Foods	Beef, pork, mutton, lamb, fowl, game, fish, shellfish, etc.
Dairy Products	Milk, cream, butter, buttermilk, cheese, cottage cheese, etc.
Eggs	
Sugar	Cane sugar, molasses, refiners’ syrups, corn syrup or glucose, honey, etc.
Preserved Fruits	Fruits preserved in sugar, Fruits preserved in pickle, Fruits preserved by drying.
Preserved Vegetables	Vegetables preserved in cans by heat. Vegetables preserved in pickle. Vegetables preserved by drying.
Fresh Vegetables	
Fresh Fruits	

Flour—To simply pulverize grains by grinding or crushing or pounding until they are reduced to the fine, powdery state known as flour does not in any essential way change the character of those grains as food—energy-producing fuel or building materials for the body. Such pulverization only does for the grains what, in any event, must be done by the teeth before the grains can be digested and otherwise made use of by the bodily mechanism. Flour, therefore, is not necessarily an unnatural food.

However, there is flour and there is also white or bolted flour. Now bolted flour means flour from which the bran, the fatty germ and the brown flour all have been removed by sifting through bolters' silk, a very fine meshed cloth which allows little else to pass through its meshes than the starch and gluten of the grain berries. It is a fact long since established that the greater part of the salts, fats, cellulose and vitamins of the grain berries passes over in the "offal" to be sold as "feed" for stock.

This means that the growth vitamins are robbed from white flour; that the calcium and phosphorous for forming bones, the calcium, phosphorous, magnesium and fluorine that form the hard substance of the teeth and their enamel covering; that the sodium, potassium, iron, sulphur and all other important mineral substances have been largely removed from white flour, for the sole purpose of making it white, and this has been done to make it more commercially profitable.

But in thus "refining" these elements out of civilization's flour, the millers remove some of the most valuable body-vitalizing and body-building elements, required for building and vitalizing the animal body, whether of man or bird or beast. Not only that, but some of the elements removed are needed by the body to enable it to make proper use in the body of those elements left in white flour after it has been "refined."

Rice.—This is a seed or grain widely used by Asiatics. It is similarly "refined," as used by civilized races generally. It has the outer branny or cellulose coat removed, and with it the fatty life germ and, largely, the mineral salts and vitamins. And, while white flour is still further subjected to a chemical or electrical bleaching process, after being robbed of its cellulose, mineral salts and vitamins, polished rice is moistened and then coated with talc, the substance sold in the shops as talcum powder, to make it still further white.

Cereals.—While it is true that any food made from grain, even the entire grains themselves, are, properly speaking, cereals, the public generally regard only the breakfast foods as cereals. Many even regard only those ready cooked as such. But I shall refer to breakfast foods as a whole as cereals.

In regard to these foods, it may be said with positiveness that those which are not altered by processing until they are no longer natural foods are among the most vitalizing foods. It may be said, too, that, with very few exceptions, this cannot be claimed for modern cereal foods. The manufacturer often does not know that removing the life germ and bran and the brown flour removes also the vegetable fats, the rich mineral salts, the vitamins. Yet, in many cases, it would make little difference, since it interferes with profit to allow these to remain, and profit is what he is in business for.

Cereal foods that retain the life germ and bran are far more apt to spoil. Such foods are more vitalizing and instinct-guided insects know the vitalizing or life-giving foods and seek them to live or rear their young upon. Whole wheat flour is more apt to spoil than is white flour, for this reason. It is especially vitalizing and the instinct-guided insects are guided by their unerring instinct to do the right thing, to seek it out. Insects are rarely found in white flour, but especially in "best" white flour, meaning the whitest and most refined. This is as true of the very highly refined cereals. These are not sufficiently vitalizing to attract insects. And if these are not vital enough to attract insects warned away from them by instinct that makes no mistakes, instinct planted within the insect to unerringly guide it to the right thing to do, what kind of an insect's brain can that mother have who, knowing this, will continue to serve such foods in a large way to her growing children?

It goes without saying, that all such foods can hardly be said to be "essentially" in the condition in which nature presents them to us. Neither can they be said to be in the same condition in which grain foods must have been eaten by our forebears when, ages and ages agone, they were evolving our anatomy and physiology for and by functioning upon natural foods, and only natural foods; and thus saddling us forever with age-old racial foods and feeding habits from which we cannot break away except at our peril; the peril that always follows the opposing of nature's laws.

Here, then, civilization presents us with the phenomenon of a variety of races of human beings living under a wide variety of conditions and climates and manifesting many distinguishing racial peculiarities, the larger part of whose dietaries is made up of white flour or polished or "refined" white rice. Such a dietary, we have seen, is deficient in cellulose or fibrous, non-digestible, non-fermentable waste, in mineral salts, in vegetable fats and in vitamins. Deficient means not enough. But not enough for what? Not enough for the needs of the body, this being in the last analysis the only use the body has for any food element.

Now we know what would happen to a house if the building supplies should run short and yet the builder should resolve to "spin out" those supplies and finish the house anyway. That house might look right, might even be right as far as the functions of a house are concerned, for a few years. Yet we know that such a house will be far gone in decrepitude and decay of old age years before such a house would begin to show wear if sufficient proper building materials had been used in its building.

Well we know that the building of houses and animal bodies are subject to the same inviolable laws of nature. For it is a law of nature that compels a house to tumble into early decay when it is improperly built. If a house will prematurely tumble into decrepitude and old-age decay, when the proper materials for its construction and repair are lacking, what may we look for and expect in a human body built and repaired out of materials lacking in several elements essential to the building of endurance in animal fibre and the proper functioning of animal organs? The reader is allowed to supply the so-obvious answer, after considering the extent to which white flour with its multitude of preparations or products, and polished rice enter into the foods of civilized mankind.

It will probably be an aid to a correct answer to recall that it is only among civilized peoples, and the simpler races and lower animals which they influence, that such foods are used; and also that it is only among civilized peoples and the simple races and animals which they influence that we find extensive disease.

However, grain foods are not the only foods which civilized people alter extensively before eating them.

Flesh Foods.—I shall not, in this place, consider the desirability or non-desirability of flesh in the human dietary.

I will say, however, that the body of a recently dead animal that was in perfect health at the time it was killed can supply a perfect human food. This must be true, for its body contains every body-building substance in the exact proportions needed by the human body.

Note I said *the body* of the animal. I did not say the muscles or the fat or the internal organs, nor the muscles and fat, the only parts of a dead animal that civilized peoples generally use as food.

We are accustomed to hearing the advocates of flesh-eating refer to the flesh-eating races, as the Esquimaux, as examples of human beings who keep well while living almost exclusively upon meat. These advocates do not tell us, however, that the Esquimaux eat only animal muscles and fat. Neither would they dare tell us so, for it would not be true.

The Esquimaux, and other simple races living largely upon animal flesh, eat the muscles, fat, cartilage, or gristle, bones, brains and the internal organs, the lungs, liver, heart, pancreas, and, more important still, they drink large quantities of animal blood. What is of equal, possibly even greater, importance, they eat their animal foods freshly killed and to a great extent raw. So used, meat may well be called a natural food. Like all natural foods, it is rich in vitalizing growth and repair vitamins and salts.

Is this the way in which civilized races eat their flesh? Never. As used by civilized races, meat must be "well bled" and, generally, "well hung" before it is "fit to eat," and for all but the very few the bones, cartilage, brains, internal organs and blood must be not even thought of as possible human food. Moreover, meat must always be cooked, generally "well done" and often fried. Often, too, it is recooked. What resemblance to *natural* can there possibly be in meat so treated? Positively none. And, if naturalness has been destroyed, it is superfluous to say that such food is unnatural food.

Then what kind of a body can we hope to build out of such unnatural building materials? It will be easy to answer if we try to imagine what kind of a house we would be able to build out of unnatural building materials. Unnatural building materials, whether of houses or human bodies, are simply materials out of place—materials used for building purposes that ought not to be so used.

Now if we build a house, or if we build a human body, out of materials that ought not to be so used, what kind of a body or a house ought we to expect? Not a staunch and enduring one capable of enduring storm and strain, of a certainty. Would it not rather be one that would rust, frequently or continually be out of repair, and long before one would expect, if it had been built of natural building materials, be an old and dilapidated building or body beyond the reach of repair? If we have any reasoning powers at all, that is what we would look for.

We have seen that civilized man's chief food is a grain food, in the form of white or refined flour, or polished rice, another refined grain food. We must, therefore, answer the question asked in the early part of this chapter by saying that man's chief food is a grain food, in the form of white flour or polished rice, foods made very unnatural by having removed from them in the course of manufacture certain very important body building and body regulating or vitalizing elements.

We now see that, considered quantitatively, man's second most important food, animal flesh, is also a very unnatural food, and for the same reason, only a part of the whole is used as food. As it is with the grain, the most vitalizing parts are refused as rubbish and the least vitalizing parts are used as fuel or building material for human bodies.

Dairy Products.—As used in civilization, milk is rarely a natural food.

One of the great requisites in human food must be *vitalizing quality*. Body-building and vitalizing qualities are the two things we look for most in food; rather are the two things we *ought* to look for most. As a matter of fact, we give more consideration to appearance and taste, surely a rather dubious proceeding for people who boastfully refer to themselves as civilized. But body vitality must always be more important than even body building is, if there can be more importance in one than the other, since a body with little vitality is hardly worth the building.

I have already pointed out that it is only natural foods, foods in that condition intended by God, that can impart any great endurance or vitality to our bodies. The Essence of Life will do Its best with the materials given to It, and will always build some kind of a body, but It cannot endow the body with vitality when that vital quality which inheres in natural building materials is absent from the building materials given to it to factor with.

Milk.—In the first place, milk, as used in cities, is never fresh. Very frequently it is quite stale. Often this stale milk is kept long in the home, sometimes over the day and night, during which times its vitalizing quality—not so much its body-building quality—is constantly retrograding or degenerating.

In the second place, milk, especially as used in cities, is almost invariably sterilized or pasteurized, a process that is almost universally admitted to reduce the vitalizing or life-giving property in milk. So true is this that physicians frequently place devitalized infants upon raw milk instead of the pasteurized variety which has been fed to them while the process of devitalization was in progress.

The excuse made for pasteurization is that it kills certain bacteria, but since it does not kill all bacteria, nor is it claimed to, but leaves still active some of the most virulent types, its value as a protective measure is often strongly disputed.

Almost all observers admit that raw milk is far more vitalizing, that is, it builds up greater body resistance as against body size, and all prefer it if its cleanliness can be depended upon.

What we have most to concern ourselves with, until the pros and cons have finally been thrashed out, is that milk is made unnatural when it is heated away above the body temperature for a half hour or more, since any unnaturalness in foods reduces their vitalizing quality.

Milk, therefore, is an important food item in civilization, considered merely quantitatively, but, as generally used, it is an unnatural food.

Butter may be considered as a natural product, in one sense, but a very unnatural food.

Butter is natural, in the sense that it is not produced by art, but it is unnatural in that, as such, it is not produced by nature.

No other animal in creation, including wild men, has any such a one-sided food as butter. It is only the civilized and the near civilized races of men who have this item of food, or a similar food, merely a small part of one of the most important foodstuffs in all nature.

The same remarks that I have applied to butter will also apply to buttermilk, cheese, cottage cheese and all other dairy products, with the exception of natural, whole raw milk.

Please bear in mind I am in no sense denouncing these foods. I am only pointing out the unnaturalness of almost all of the foods used by civilization to build and vitalize the bodies of civilized men and women, in order that I may hope to impress the reader with the reasons for the existence of omnipresent disease amongst civilized races, while almost no disease at all exists among the savage races. The reader who once grasps the idea that natural, vital, resistant bodies cannot be built out of almost entirely unnatural body-building materials must be in a better situation to understand how to remedy or compensate this evil, while yet living under what we call civilized conditions, which it is my ultimate aim to point out.

Eggs.—Eggs that are coddled, lightly poached or very soft boiled are natural foods, in the sense that nothing is added or taken away and nothing has been radically changed by preparation. The very slight cooking changes little, if at all, their natural condition. But hard boiled eggs are devitalized by long cooking, although they still may act as body-building material. Scrambled eggs, egg omelets, and fried eggs are very unnatural foods, in the same class as hard boiled eggs as to being devitalized, but with the disadvantage that they are harder to digest. Old or stale eggs are bad for the same reason that old or stale flesh foods are bad, reasons for which I shall supply in another place.

Sugar.—This, of course, generally means commercial sugar, made from the juice of sugar cane or sugar-beet roots.

When sugar is in its brown, unrefined, slightly moist stage, it is, in one sense, natural food, consisting of a saccharine or sweet principle, proteins, certain resins, gums, aromatic properties and mineral salts natural to the juice of the sugar cane. And yet it must be borne in mind that sugar really is not a natural product. The juice from which it is made is natural, but to concentrate that juice by art, with the aid of heat, is to disturb the natural relations between the various elements which enter into its composition. A considerable use of even this "natural brown" sugar will, therefore, very surely disturb the balance of almost any conceivable dietary. But sugar is now seldom used in its "natural brown" state. The craze for "refinement" has extended even to sugar. White or "refined" sugar is almost the universal rule in civilization. In this sugar there is practically nothing left but the saccharine or sweet principle. After sugar has been whitened as much as filtration through burned bone dust or meal can bleach it, it is still further whitened, or its whiteness is further intensified, by washing it in a blue dye, much as clothes are "blued" after washing. Eaten in any quantity, this refined sugar is certainly very unbalancing to the general group of body-building materials that can be provided by any dietary.

Maple sugar is also cane sugar, and, when unrefined, is a natural food. But there is too little of it used in civilization to have any real effect. And in recent years the refinement craze has extended even to maple sugar, although all the maple character has not, as yet, been refined out of it.

White sugar, it is not hard to see, is as far from *natural* as the conventional hell is from the conventional heaven.

Molasses.—This is the non-crystallizable "mother liquid" drained from the crystallized brown sugar in the process of sugar making from sugar cane. In old days of plantation-made sugar, even in the early refinery days, molasses contained every property of the juice of the cane, having only a part of the sucrose or saccharine principle removed through crystallizing out as sugar. But molasses from the modern refinery is a very different thing. Practically all the sucrose is removed, leaving a very strong-tasting liquid, generally regarded as too rich in salts. While white sugar is deficient in mineral salts, having almost none whatever, molasses has the opposite fault, it having the extra salts that nature intended to be in the sugar and that should have been left there. Thus the molasses is as far from being natural as is the sugar.

Refiners' Syrup.—This is the non-crystallizable liquid drawn from white sugar when the sugar crystallizes out. It is to all intents white sugar and just as unnatural a product.

Corn Syrup or Glucose.—Theoretically, this is said to be a wholesome food and, if chemically pure, would be so classified. However, this is rarely the case. It is too apt to be contaminated by the chemicals used in its manufacture, and there is no way in which the consumer can detect what sample is and what is not so contaminated.

The reason why pure glucose is theoretically a good food, although not ever a natural food, is because it is always as glucose that starch is made use of in the body. But a lot of starch produces only a small quantity of glucose, therefore, only a small amount of even pure glucose ought to be used at any one time, and then only if little starch has been simultaneously consumed.

But there is one fault about this theory of glucose being a good food. Starch is never produced in nature as purely starch. It is always associated with cellulose, salts, vitamins, etc. Undoubtedly these aid the bodily organism in converting starch into glucose and then in making *ultimate* use and disposal of it. All these are lacking in pure glucose, or else it would not be pure. To those who believe that nature and naturalness in foods do not count, glucose may be a good food, theoretically, when in its pure state, but he who bows to nature will have his own opinions about it, and they will not altogether agree with the makers of glucose.

Preserved Fruits.—All kinds of sugar-preserved fruits are preserved in white sugar. Even if they were preserved in natural brown sugar, they would be far from natural foods, but the unbalanced white sugar, used in large proportions, makes them quite as unnatural as white sugar or molasses. Fruits preserved in pickle may be said to be no longer fruits nor to have any of the food uses of fruits. There can, therefore, be no question of their unnaturalness when used as food. Foods preserved by drying or evaporation, "dehydration", to use the technical term, are, when the dehydrating has been properly performed, almost equal to the fresh fruits. But when such fruits are "sulphured" during the drying process, as they so often are to improve their color, they are quite unnatural. Of fruits preserved in liquids, those canned or bottled in little or no sugar are undoubtedly the best, but still they are not very natural. They do not, however, have the disadvantage of being associated with a lot of cane sugar in a way never contemplated by nature. While such fruits can, to a limited extent, take the place of entirely natural fruits, when natural fruits cannot be had, it must be kept in mind that they cannot replace natural fruits, as nothing that is processed in any way ever can. And the point to remember in this connection is that civilized peoples use a very large quantity of such fruits.

Preserved Vegetables.—Vegetables are often preserved in cans by the use of heat. The chief disadvantage in such methods is that the vitamins are apt to be destroyed. There is, however, another disadvantage, claimed by some observers, which I believe has considerable reasonableness to support it. The earlier any food is used after it is cooked the better it is supposed to be, according to this view, and for the reason that cooking alters or kills the vitalizing principles. Having their Life destroyed by heat, they cannot transfer Life to those who eat them.

Foods are said to be quickly devitalized entirely after they have been cooked. Foods that are long kept, even when not cooked, lose some of their vitalizing power. Old fruits and vegetables, for instance, old meats and old eggs, etc., are less valuable foods than are these same foods when fresh. Is it not reasonable to suppose that when foods are subjected to such a physical change as is produced in them by cooking at a high temperature they will be very materially altered in their vitality or Life-imparting properties? I do not mean that they will lose the power to build bone and tissues, but they lose the power to vitalize the body, to endow it with life and make it resistant in the way that fresh foods that are alive, or that have recently lived or been themselves in a vitalized state, can do. It must be remembered that while canned vegetables retain certain appearances of naturalness, they are not natural, yet civilized peoples eat a lot of these unnatural foods. And we have pickled vegetables. This is probably the most unnatural means of preserving vegetables. As in the case of pickled fruits, they are no longer vegetables in the true sense and neither can they act as vegetables in the body. In pickling, some other element is always added, as vinegar, in addition to cooking, by which digestibility and nutritive value are virtually destroyed.

While it is only possible for human beings to remain supremely well and immune from disease on into very advanced life when their bodies are vitalized and made resistant to disintegrating influences by the use of natural—that is to say God-intended—foods, what are we to think concerning the likelihood of remaining disease-free while living largely upon the foregoing list of so-unnatural foods? Is there any suggestion of a reason originating in the use of such body-building but non-vitalizing materials why civilized peoples are reeking with disease? Think it over, but do not yet decide.

It must be borne in mind, in connection with the foods of civilization mentioned in the preceding part of this chapter, that there are other reasons than the unnaturalness pointed out why they make for the establishment of human ill health and disease.

White Flour.—The deficiency of this food in cellulose, mineral salts and vitamins would be a sufficient condemnation of it as an unnatural food, but its shortcomings do not generally end there. Almost invariably the white bread habitue is also a *fresh* bread habitue. Bread must not be more than one day old. If it is but a few hours old, or "just out of the oven," so much the better.

It is an old story that such bread is indigestible. Almost everyone knows it is, but they eat it nevertheless, one strong proof that we civilized people *earn* disease doing as we *like,* not doing as we *ought.* Here the "staff of life" of civilized peoples is robbed of its vitalizing properties to a large extent, and the poor remainder is made largely unavailable as nutrition, and is positively not vitalizing at all, by being eaten fresh, while it still contains a lot of the yeast gas and is in such a "doughy" condition that it is impossible to mix with it the saliva, in the absence of which it is never digested in the stomach at all.

Fresh white bread, therefore, in all but the most vigorously acting digestive tract, in which digestion is speeded up so that it cannot occur, is largely broken down by fermentation of a non-digestive type into the products of degenerative fermentation—products that poison the body but do not feed it, do not build its tissues nor vitalize or give Life to its cells, but the reverse.

Let not those who do not suffer the conscious pangs of indigestion after eating fresh white bread cozen themselves into believing they are unaffected by it. Not everyone who has indigestion has the good fortune to suffer local pain in the stomach. Only those with sensitive stomachs thus suffer. And they are often the more fortunate, since their sufferings make them respect that delicate organ, the stomach. They are apt to learn to eat more rationally and live more secure from disease than those who can abuse their bodies with the most wretched food concoctions, yet not suffer in the digestive apparatus. These so careless feeders, however, ought to learn that the poisons resulting from wrong foods and feeding habits are taken into the blood and circulate among the bodily organs: the muscles, brain, nerves, heart and bloodvessels, as irritants or depressants, and, in so doing, counteract the body-building and vitalizing benefits derived from those better foods that may be well digested. Besides, these poisons must be carried out of the body by the excretory organs: the mucous lining of the digestive tract, the liver, kidneys, lungs and skin. The brain and nerves "go to pieces" or the kidneys fail or the lungs become diseased, and the mighty man who boasted that he could "eat nails" is a most pitiable wreck—and always the most self-pitying sinner that a physician sees. If he is religious, he wonders why "the dear Lord afflicted me so." Utter blasphemy!

While some, or any, of the above-mentioned organs may bear the brunt of the strain, it is more apt to be the heart and bloodvessels. Who has not seen, among his mid-life friends, men stricken down *apparently* in "the best of health", never having been "sick a day"? They never knew what indigestion was, but they suffered from its systemic poisons, nevertheless, and they died early victims to heart and bloodvessel diseases caused by their senseless use of foods; diseases that belong only in very, very advanced human life, if, indeed, they belong to human bodies at any age which have been biologically fed and physiologically encouraged.

Of course, the same comments made upon fresh white bread apply with equal force to hot white "tea biscuits"; yes, even with greater force.

Pastry, rich puddings, rich cakes or simple ones made from white flour, sugar, eggs, shortening, baking powder, fruit-preserves or jellies, fruits, fresh or dried, seasonings, etc., are as far from natural as the east is from the west. Let such foods seem to digest as they may, they cannot build natural human flesh nor vital human bodies, and, surely, if they cannot they do not. Well, if they do not, what kind of human bodies do they build? Let the reader's own intelligence answer that question and he or she will have learned the lesson I would get into his or her brain, so firmly rooted there that it can never get out again.

Before I leave the white flour subject, I would add that digestibility and health-building value of fresh bread are not improved by being spread heavily with butter and conserve of some kind, to be rolled up in a "doughy" mass in the mouth by a few snappy chews, which such careless feeders are sure to be satisfied with, before bolting the mass. Nor is fresh white bread improved as food by quickly toasting it to a thin scale of brown covering a doughy inner mass within the centre of the slice of bread, then covering the slice with butter to melt and saturate the starch granules with grease to an extent that makes it impossible for the digestive enzymes to reach these granules at all.

Fresh white bread, eaten with refinery syrups or conserve, or hot buttered toast made from fresh white bread, only augment the systemic injury which, consciously or unconsciously, is always afflicting the considerable eater of fresh white bread.

Cereals.—If cereals are properly made from the entire grains, thus including the branny cellulose, the fatty, mineral-rich germ and the well mineralized brown flour in addition to the white flour from the centre of the grain berry, they are among the most natural of all human foods.

To be properly made, however, means that they must be made or manufactured in a way that will enable them to be prepared for eating without becoming pasty, yet manufactured in such a way that they can be easily cooked, immediately before eating.

It has been demonstrated that smooth, pasty and starchy cereals do not stimulate the salivary secretion, and yet it is the salivary secretion that must be depended upon to digest cereals, since they are so largely starch. The stomach secretion cannot digest starch at all. So soon as stomach secretion begins to be poured into the stomach cavity by the stomach glands, whatever starch digestion that may be going on in the stomach from mixing it with saliva as it passed through the mouth must immediately cease. For the starches can only be digested in the stomach by the saliva while the saliva remains alkaline, and the acid stomach secretion neutralizing the alkaline saliva, starch digestion is compelled to cease. Hence the great importance of thorough mixing of the saliva with the starchy cereals before they are swallowed into the stomach. Hence, also, the importance of using cereals that stimulate the salivary flow, since it is hard to hold the smooth, pasty cereals in the mouth long enough to enable saliva to be mixed well with them.

Cereals that include the whole of the grain cannot become pasty nor can they become starchy and smooth. The branny cellulose and the brown flour prevent this pastiness and smoothness.

Pasty cereals are the rolled, crushed and flaked varieties.

Non-pasty cereals are those cut into little granules in the old-fashioned "buhr stone" mills or the new style "steel cut" mills. Such cereals cannot become pasty, even when cooked for hours. Their granular character mechanically stimulates the flow of saliva into the mouth and this is aided by the mechanical stimulation of the branny cellulose, and both the cellulose and the granules increase the porosity of the food mass so that it can readily mix with the saliva that is to digest its contained starch. For these reasons the granular cereals must always remain the cereal type of first choice. They are the *natural* cereals.

I said it is important that cereals be cooked just before being eaten. They should also be quickly cooked. Cooking is the one unnatural thing about whole grain cereals or grain foods, therefore, the shorter the time they are cooked and the sooner eaten after being cooked and slightly cooled, the nearer to natural foods must they be. Only thus can their vital or Life Principle be retained, to be passed on to those who eat of them, thus vitalizing them and making their bodies resistant to disease.

This rules out as unnatural foods not only the rolled and crushed cereals, but those partly cooked in the factory, so that only two to five minutes are required in the home cooking; also the fully cooked, flaked, shredded and puffed cereals, prepared "ready to eat." Such foods can build the material substance of the body, but they cannot vitalize the body and give it resistance to disease.

Cereals, or any other foods, that are cooked in the factory and then allowed to stand upon the dealers' shelves, may be good body-building foods, and they often are, but they are never body-vitalizing foods—and loss of body vitality, the power to resist disease, is the primary cause of disease.

There are two reasons for this lack of vitalizing quality. Almost invariably the fatty, mineral-rich life germ has been removed from factory-cooked cereals, which destroys most, or all, of the vitamin content and mineral salts, but, even when this is not true, the cooking lessens the potency of vitamins, and the "desiccating," or drying out, to make such foods "keep well" upon the dealers' shelves, destroys what remains.

Analytically, the chemist can find in factory-cooked cereals all that can be found in the same cereals when cooked at home. But there is a vitalizing, life-endowing something in natural foods, and foods not long separated from their Living Principle, that chemistry cannot yet, and probably never will be able to, find.

Whole grains before they have been cooked still have this vitalizing Life Principle in them in their life germ, because, under suitable conditions, the germ will germinate and develop a new plant, a new life. But once a seed grain has been *fully* cooked it is dead and no new growth or life can ever be evolved from it, whether it still has the retained germ or not.

Grains that have been factory cooked and sent out into the market to await consumption are in the same class as flesh foods not immediately eaten after being killed, considered as vitalizing foods. Both having been some time separated from their vitalizing Life Principle have lost their body-vitalizing quality, and those who use them to a considerable extent as foods cannot hope to be very vital or to build up a great resistance to life's body-disintegrating influences. Sooner or later this devitalizing process must result in bodily disease.

Disease, remember, is something that nature or God did not intend us to have. We bring disease upon ourselves by wrong living habits, such as eating non-vitalizing, dead, or even devitalizing foods; foods changed by the folly of men until they are not at all what God intended them to be or us to use—unnatural foods.

Flesh Foods.—Not only are meats, or flesh foods, as eaten by civilized peoples, unnatural foods, therefore, unavoidably, productive of degenerative processes in the bodies of those who consume them largely, but generally any virtue that does remain in such "well bled" meats, in spite of the refinement which eliminates the bones, gristle, organs and blood, is removed by cooking at a high temperature until it is "well done." Muscle meats are deficient in mineral salts and vitamins, even if eaten immediately after being killed, and uncooked; but, when cooked, any salts that may chance to remain are thus largely heat destroyed. This is especially true of the vitamins.

But the devitalization caused by cooking may be said to constitute only a passive or negative evil, whereas the "hanging" of meat to make it tender is a most positive health evil.

The moment the Life Principle departs from an animal body decomposition sets in. So that, in addition to the loss of vitalizing properties which is common to all foods some time separated from the Life Principle, but greater in flesh foods and increasing as the time increases during which they have been separated from the Life Principle, there is very quickly produced in flesh foods the poisons of decomposition. Such foods, whether chilled or not, within a few hours after death swarm with the micro-organisms of putrefaction. These bacteria cannot possibly multiply without causing the poisons caused by the life processes of their putrefying kind. One cannot eat dead animal parts of any kind, even a few hours after the death of the animal, without eating myriads of these bacteria which cause dead flesh to quickly rot. In addition, one has to swallow the products of the rotting flesh which they immediately begin to cause.

Thus, meat eating, as it is practised in civilized lands, it must be admitted, no more resembles meat eating among the Esquimaux than angel food resembles hot dogs.

We must not forget that flesh has begun to rot long before we can detect it by our sense of smell. And, too, we must not forget that it is decay or rotting that makes "well hung" meat tender; and most civilized people like their meat tender.

Canned meats, pickled meats — cured and preserved meats of all kinds—all have the food and nutritional drawback of being what we might call unnaturalized in several ways. First: they are eaten long after the animal died, thus they are long separated from the vitalizing Life Principle. Second: they are cooked for a long time at a high temperature, which destroys what little vitamins they may possess. Third: they are often impregnated with salt or some other embalming chemical, which disturbs or destroys the small amount of mineral salts remaining in such foods.

There is nothing merely fanciful or theoretical about these claims. Arctic explorers have proved that canned meats, or meats of any kind other than fresh, unsalted flesh, will not prevent scurvy. Newly killed, unsalted animal flesh will not only prevent scurvy from developing, but will quickly cure an already far advanced scurvy.

Thus animal flesh, while it may be said to be a natural food, therefore a vitalizing food, if only recently killed, not "well bled" and eaten almost, if not quite, raw, with a portion of the internal organs, as the liver, heart, brain, etc., is about the most unnatural, therefore non-vitalizing, human food conceivable, when it is eaten as most civilized races eat it.

Meat broths, meat soups, meat extracts, however highly advertised, cannot possibly contain an iota of nutritional or body-building properties, and under no circumstances can they be conceived of as vitalizers of the human body, since the meat protein cannot be dissolved by heat and any soluble mineral salts that are dissolved out into the broth or extract are destroyed by the long application of heat. A famous English physician and physiologist, Dr. Abernethy, asked what he thought of "good meat broth" as a human food, replied that it has about as much food value as good urine. And this is actually true. The analysis of meat broth is very similar to that of urine. And why should it not be? Urine is a watery solution of the used-up mineral salts and proteins of the body, also some of the end products of the digestion of our foods, especially our meat or other protein foods. Broths are a watery solution of "extractives," largely consisting of the waste products of protein metabolism and used-up mineral salts which the animal had not excreted before death. It is no argument in favor of meat broths to say they stimulate. Many poisons, as alcohol and cocaine, will do that, for their primary effects. But they depress in their final or end results. And the secondary effect or reaction of all artificial stimulation is depression. It is my positive opinion that many a stricken body that would have recovered upon fruit or vegetable juices has been, and is, stricken beyond possibility of recovery by "good broths" and other deadly foods.

Anything I have said about meat applies equally to all flesh foods, whether fish, fowl, game or muscle meats of the steer, sheep, goat or horse.

As eaten by civilized mankind, these are almost the most unnatural of foods, and, consequently, they cannot be expected to grow vital, natural bodies, immune from disease.

Before we leave the subject of flesh foods let us remind ourselves we are searching for the living habits of civilized peoples that differ from the living habits of those human races that do not suffer from the diseases which decimate civilized mankind. Let us also remind ourselves that it is only natural living foods that can vitalize the body and give it the life and power to resist degenerative processes or influences generally called disease. Let us, then, try to get a mental picture of the quantities of unnatural meat or flesh of all kinds eaten by civilized peoples and place the meat foods and the diseases of civilized peoples alongside of each other. But let us, for the time, withhold our decision as to whether one bears any relation to the other, although keeping that possibility in mind.

Potatoes.—Among western civilized peoples the potato surely ranks next to grain foods and flesh foods as a staple foodstuff. In the United States, the average consumption equals four bushels per capita.

The potato is largely starch. Its average composition is 2½ per cent. protein; 1½ per cent. mineral; 20 per cent. carbohydrate, chiefly starch; 76 per cent. water.

The potato is one of the comparatively few sources of the important vitamin C, the "accessory" food substance, or food quality, that prevents scurvy.

The potato is the one largely starch food used by civilized peoples that yields an excess of alkaline minerals over acid minerals to the blood and body tissues, if or when it is properly prepared. This makes it of unique importance in the civilized dietary—only if or when it is *properly prepared.*

However, to be properly prepared, all the natural juices of the potato should be preserved to be eaten with it. This can be accomplished only by baking or roasting or steaming potatoes in their skins.

It will be noted by reference to the average analysis above that the potato contains an unusual quantity of minerals. This is of very, very great importance in itself, but it becomes of unique importance in connection with a carbohydrate or starch food, when we realize that these minerals are largely sodium, potassium and iron, all alkalis, and, with the single exception of calcium, the most important alkalis in relation to human bodily health.

I do not need to mention how vitally important iron is to the human blood and tissues; its vital importance is widely known. So is the fact that iron is contained in raisins. But it is not generally known that potatoes contain at least two-thirds as much iron—pound for pound—as is contained in the highest-priced raisins. Considering their relative cost, potatoes are by long odds the cheapest source of body iron.

The reason for cooking the potato in its skin is that in no other way can these soluble minerals be preserved within the potato for body consumption and body use.

From what has already been said in connection with other foods, it will be clear that the less potatoes are cooked, past the very earliest stage of palatability, the better for their body-vitalizing qualities or properties, for then the more natural they must be.

The potato, then, being largely carbohydrate, is a first class source of energy. Its protein content, though small, has been shown by investigators (Rose and Cooper), to possess high protein value, because of its high quality. Its mineral values are also of the very best, and they hold the unusual chemical relation to the blood, for a starch food, that they are alkalinizers, containing considerable calcium, large quantities of sodium and potassium, and are good sources of iron. All this, provided it is *properly prepared*—cooked in the skin and not overcooked—and never recooked.

Now what are the facts concerning the serving and use of this potentially valuable foodstuff by civilized peoples? Almost always, potatoes are completely peeled. Almost always, the "good cook" allows them to stand in water, sometimes for a half a day, thus leeching out into the cold water their so-valuable mineral salts, which are drained off with the water before cooking. Then they are boiled in salted water until they are "floury," or "mealy," after which the water in which they are boiled is again drained down the sink.

Now what is it that goes down the sink? Just water? Oh, no—by no means. Health it is that goes rippling and gurgling down the sink, in the forms of vitamin C, calcium, sodium and iron; and to a lesser extent, chlorin, phosphorous, magnesium, sulphur, etc.

Keep this fact in mind about the drainage and peeling and boiling of potatoes, for we shall come to it again in connection with vitamin C.

Well, I wish I had told the worst in connection with the way in which "good cooks" ruin potatoes—and other equally good foods. But that is far from being so.

After potatoes have been made what one might think almost as unnatural as possible, as just described, they are often fried in hot grease and deluged with hot pepper and salt. Often, they are salted and buttered and mashed. Often they are mixed with butter, salt and milk and "creamed." Less often in homes, more often in public eating places, instead of being boiled, they are sliced in different ways and cooked in boiling fat, as French Fried or Saratoga Chips. But whatever form of cooking potatoes is the choice of the "good cook," it is almost never that of baking, or steaming them in their skins. That would be far too natural. Which bears out what I said in the first paragraph, chapter one, about civilized people going out of their way to live as unnaturally as possible. And this would little matter, of course, if living unnaturally, that is contrary to nature or in opposition to nature's laws, had no serious consequences.

But think! Is there, can there be, any single action that can be performed contrary to nature's intent or nature's laws, and no serious consequences follow? The question is already answered in the asking of it. Only a fool would seriously ask it.

Then what is your candid opinion? Add to the unnaturalness in foods resulting from the methods of preparing and serving our chief foodstuffs, grain foods and flesh foods, the similar unnaturalness resulting from the methods of preparing and serving their chief associate in feeding—building, repairing, energizing and vitalizing—the bodies of civilized races of mankind, and is there a reasonable chance that there may be any connection between the way those bodies are built and devitalized and the way they are diseased? Think it over, but come to no definite decision as yet.

Milk.—Milk is a perfect food for infants. For all ages beyond infancy it is lacking in iron, carbohydrate and cellulose or roughage. If an adult would live upon milk, entirely, as one well may, he would be compelled to take far more of it than is necessary for all other needs of his body in order that his body might be supplied with sufficient iron, carbohydrate and food waste. However, the excess of protein and salts thus ingested can be excreted with far less irritation and strain upon the organs of elimination than a similar excess of these substances from any other food source, but especially if ingested as meat.

Of course, the statement just made presupposes that the milk is natural, clean, fresh milk. However, if milk is changed in any way from that condition or state in which nature supplies it, the statement that an adult human may live a completely healthy life and eat no other food is wrong. Let us get this point. No human being can live an entirely normal—or healthy—life feeding entirely upon any unnatural food or foods. Even infants cannot live upon milk alone and keep well when it has been changed by such a short heating at low temperature as is required to pasteurize it, but especially if heated to the point where it will be sterilized by heat. Thus delicate are nature's balances.

And yet the chemist can find no property or quality in fresh, natural, unsterilized milk that cannot be found in sterilized milk. In natural milk and in all other natural foods there are subtle vitalizing principles that scientists know are there, yet neither chemistry nor any other branch of science can locate and identify them. Yet, they are very easily disturbed or destroyed. Nature's products are perfect, as we ought to know, and she permits us to do very little messing about with them under the delusion that we are improving them.

Still we do mess about with them as if we do not know this tremendously vital truth. We refine and sift and otherwise daintify. We factory cook and toast and shred and puff and malt and otherwise "prepare" our cereal foods; we thoroughly bleed and "hang" and age and chill our flesh foods and remove bone and blood, cartilage and the internal organs; we cook and can and salt down and chemically and otherwise preserve our flesh foods so that it is sometimes many months after an animal is killed and its flesh separated from its vitalizing Life Principle that it is eaten. We are fools enough to make our most frequently used foodstuffs as *unnatural* as possible and at the same time talk learnedly of the inviolability of the *laws of nature.* We do this, knowing all the time that *to make a thing unnatural is to break the law of its nature,* then we close our eyes to the *natural* consequences and in vast scientific efforts set ourselves to search in the most unnatural directions for the *causes* of these *so-natural* consequences.

And milk is no exception to the rule. We often start with the feeding of the cattle to make our milk supply unnatural. Cattle are frequently fed upon patent "stock" foods which, while they may stimulate a large yield of milk, and the chemist may find in it all the elements that chemistry can find in milk produced upon the best natural fodder, still it lacks the vitalizing qualities or properties of natural milk, or of milk produced by naturally fed cows.

The ingredients of many of the "stock" foods are largely made up of the "offal" from human food factories, offal being that which human food "experts" are in the habit of removing from or "refining" out of the foods that God made perfect foods for men, in order that these God-made, perfect foods may be man-improved (?).

Some of this offal comes from flour and cereal mills; some from distilleries and breweries; some from beet sugar refineries; some, as molasses, from cane sugar refineries; the cheapest sorts, of course, entirely overloaded with salts, as pointed out already in another section; some from many sources, but all are as unnatural as are our human foods. The milk derived from them must be, *and is,* equally unnatural; the cattle so fed almost equally diseased to the civilized beings who compel them to eat and manufacture milk upon such foods.

When it is the commonest knowledge among physicians that the vitamins, but especially the antiscorbutic vitamin C, are reduced or disappear from milk when the cows are simply changed from grass to hay, it can be well imagined what effect this degradation of the foods of our milch cows must have upon the vitalizing properties of the milk supply of civilization.

But that is not all. Cattle are kept tied, day and night, in stable stalls, often entirely unventilated, their excrements allowed to accumulate about them until it is all but impossible for the unaccustomed human, at all sensitively constructed, to breathe in the horrible fetor. Think of this! Animals intended by nature to run wild over the open hills and meadows inhaling the pure ozone of wide open nature, browsing upon the foodstuffs of God as they come from His hand, fed, at least partly, upon trash and chained to this ignominy! Would you function as nature intended you to function in life if you were thus treated? Of course you would not. No, you would not, for you could not.

Yet you, too, are housed in, shut away from God's great out-of-doors; your skin is heavily swathed by an artificial, unnatural covering of clothes, often several layers of it, and you are fed largely upon unnatural foods. You cannot function as God intended you to function, so long as you violate nature's requirements that way.

Neither can the cow.

But this is not all. When cows are milked it is often done in these reeking stables. After milking, the milk is often "separated," then the cream and separated milk again combined in proportions of milk and butter fat to make a standardized milk, carrying a standard amount of cream. It is then heated to 140 to 145 degrees F. for 20 to 30 minutes, then quickly chilled and kept cold until delivered to the homes of users.

All this to one of the most delicately constructed foodstuffs in nature. Do you think all this manipulating does not depreciate in any way the vitalizing properties of this delicately constructed food? No, you do not think so. And you are right.

Huge quantities of this milk are evaporated, condensed and powdered. The quantity evaporated in the United States alone runs to between one and a half to two billion pounds annually.

Condensed milk is made as follows. Fresh milk is heated to about 180 degrees F. to expel dissolved gases, then put into vacuum pans and 16 per cent. cane sugar added. It is then kept at a temperature of 130 to 150 degrees F. until reduced by evaporation to desired consistency.

Evaporated milk is made in much the same way, but without sugar, and, in addition, after it is canned it is heated to from 126 degrees to 140 degrees F. for 30 to 60 minutes.

Powdered Milk.—Several processes are followed to make powdered milk. (a) Passing milk in thin films over hot surfaces. (b) Air is blown through films of partly evaporated milk on drying cylinders. (c) Spraying evaporated milk into dry, hot air.

I wish to remind my readers that I am not condemning these milk preserving procedures. Under our present social organization, they may be an advantage, or even a necessity. But we must know that such foods are unnatural in order that we may be roused to do something about it.

For we must keep continually in mind that only natural foods can possibly build natural bodies—bodies naturally physically perfect, as wild animal bodies are. We must not forget that unnatural foods may build *natural looking* bodies, in that they may have size or bulk, but that no unnatural foods can confer vitality, life, body resistance, upon those body tissues, however large or bulky they may be. We cannot, however, pass over the use of so much unnatural milk foods in the dietary of civilized races, when we are searching for the habits of civilized races that differ from the savage races that suffer no diseases.

I would here ask the reader to add the unnaturalness of civilization's milk supply to the unnaturalness of civilization's bread, cereals, meat and potato supplies and then ask himself, can there really be any possible connection between the unnaturalness of the foods of the civilized races and the diseases so omnipresent among civilized peoples? But do not yet come to any definite conclusion.

Note:—Before passing on I would urge the reader to thumb mark one point developed in this chapter, viz., almost any food will build the body, but only foods not deprived of their own Life Principle can confer life, and, therefore, resistance to death, and the diseases that cause death, upon bodies eating them; and only natural foods have life. If he will carry this thought through this entire study it will help him greatly to understand how to live entirely immune from disease.

CHAPTER SIX

THE FOODS OF CIVILIZATION (Continued)

In the previous chapter I discussed the four standard, the four most commonly used, foodstuffs of the civilized peoples, especially of the western civilized races. Any variations of these foods presented by the food habits of eastern races are in no way essential, therefore do not affect the factor of unnaturalness under consideration.

There are, however, a few other products which form a more or less prominent part of the civilized man's dietary that have a bearing upon his health. Some of these I shall briefly discuss.

Cream.—In chapter five I briefly touched upon butter. The same remarks will apply to cream, except that cream is not likely to be made still more unnatural than its separation from the whole milk effects, by the addition of considerable salt.

There cannot be much doubt that those who can and do enjoy the "luxury" of "lots of good rich cream" do not live so long, other things being equal, as do those who are compelled to take their cream as whole milk. This is either true or *natural* means nothing when applied to foods.

One thing is sure, that the animals and the wild men who are almost, if not entirely, disease-free, have no such divided up part foodstuffs as we know cream to be. Nature must have meant the cream to go with the rest of the ingredients in milk, the whole to be taken together, for that is the way in which she produces it and all her unsophisticated creatures, that make any use of milk at all, use the entire milk. Only civilized man, that improver upon God or nature, has the thought to make use of "refined milk" in the form of cream. But this does not condemn cream as a food if properly compensated by enough other natural foods.

I have already spoken a word or two about buttermilk. I would add that one very important food element, butter fat, has been "refined" out of buttermilk. It has thus lost its *natural* balance.

While the lactic acid which causes buttermilk to be sour has a retarding influence upon the development of putrefactive bacteria and their poisons in the lower bowel, the lack of vitalizing freshness, due to the time which so often must elapse before milk is turned into butter after it was separated from the living animal, must, to a considerable extent, offset this single advantage. However, if the individual is using enough fresh sweet milk, in its natural state, it is unlikely that the use of buttermilk in any reasonable amount can do much harm. Indeed, it is conceivable that, in certain individuals, those eating very freely of "well hung" muscle meats, it may do a great amount of good, if not taken at the meat meal. For the colon of such a person must be reeking with the bacteria of putrefaction or decomposition, plain rotting, to use the blunt Anglo-Saxon which everyone understands; and lactic acid bacteria, which cause buttermilk to be sour, are the natural antagonists of these putrefying or rotting bacteria.

However, the real point is that those rotting bacteria and their poisons ought not to be there in harmful proportions, and they would not be if the diet were made up of natural foods.

There is another point about buttermilk that adds to its unnaturalness, therefore, to some degree, to its unwholesomeness. That is the amount of salt it usually contains. Yet, while even small additions of salt must have its unnatural effect upon the body taking it in with buttermilk, I have seen persons adding as much as a half a teaspoonful of salt to a glass of already too salty buttermilk; again proving that civilized human beings live as they wish, not as they ought.

Cheese.—The same unnaturalness applies to cheeses of all kinds. They are not natural foods, when separated from the other elements in natural whole milk.

There cannot be any doubt about the body-building qualities of cheese being good, but I have already pointed out that we must have more than body building, we must have body resistance, body vitality, and this cannot be found in nature's foodstuffs when they have been mussed and messed about with by human art.

Please let me again make it clear that I am not condemning these dairy foods. I aim only to show that they are unnatural and, because of this, their unnaturalness must be properly balanced or compensated by the use of natural products that will balance them, and be used in sufficient amounts for that purpose.

That is what the civilized races have not learned to do, but it is what they must learn to do if they would escape the menace of the ever-increasing chronic diseases which civilized peoples are—heirs to?—no,—attracting to themselves by their living habits. If civilized races were really heirs to diseases, I would not be writing this book. The civilized races, like all other creatures of a perfect Creator, are the heirs to perfect bodies, and that must mean they are heirs to absolutely perfect health. It is that they may learn, at least something, about how to come into possession of their noble heritage, vouchsafed them by God, that I am writing.

When we stop to think that, according to Professor McCollum, 65,000 young people, under forty, die every year, in the United States alone, from old-age diseases of the heart, arteries, kidneys, brain and nerves, and the digestive organs, diseases that belong to 70-80-90-100 or even beyond, if they *naturally* belong to human bodies at any age, which I take the liberty of doubting, we see that it is time someone did something about it. Rather it is time everybody began to do something about it, for there are already many thousands of devoted men and women who are struggling earnestly to enlighten the civilized human mind as to the causes of human disease—and getting little appreciation or thanks for their efforts.

The best scientific data obtainable places the natural life of man at about 120 to 125 years, after which, having lived all those years free from disease, he should lie down and pass peacefully into his last, long, earthly sleep, after possibly a few days' gradually increasing somnolence; the kind of an end I have many times witnessed in the very old, of both sexes, who have always been quite healthy.

Sugar.—I have already pointed out the unnaturalness of this food product, even of the natural brown variety, but laid special emphasis upon the diabolically refined white variety.

There is one entirely natural sweet, which, from the dawn of history, and probably for ages before, down to within a few centuries, formed almost the only sweetening agent for the human race. This sweet is honey. The only other sweets known to the ancients were the sweet fruits, dates, figs, raisins, etc.

Cane sugar, brown or white, is what chemists call a polysaccharide. This means, among other things, that it is not ready for immediate absorption into the blood. Before it can act as food, it has to be inverted, changed into a monosaccharide, a simpler form of sugar, by the secretions of the cells which line the digestive tract. Herein lies a great dietetic disadvantage to civilized mankind in the use of cane sugar.

If cane sugar is eaten by itself, it is inverted without great difficulty. But cane sugar eaten alone has the disagreeable property of acting as an irritant to the mucous lining of the stomach. Moreover, white sugar can never be considered in any slightest sense a body-builder. Brown, raw cane sugar does furnish some body-building substances, in the form of mineral salts, but even brown sugar can furnish only mostly body heat, and white sugar can furnish absolutely nothing else.

Yet, in civilization, we are confronted by the phenomenon of seeing people, on a hot day in summer, guzzling quantities of sweetened drinks and sweetened sundaes and creams and ices with the idea of being cooled, when the fact is that every mouthful means added body heat.

White sugar does furnish a tremendous amount of body heat. Taken in excess, which is a very easy thing to do, it is not hard to understand that white sugar can lay a great strain upon the heat-regulating mechanism of the human body, since the body was never designed, anatomically nor physiologically, to make use of such concentrated sources of heat supply. To grasp the truth of this statement, it will be only necessary to hold in mind the fact that throughout the ages and ages and ages during which the forebears and ancestors of our human race, from whom we inherit our anatomy and its physiology, were evolving it to perfection out of their physical environment, of which natural foods formed a most vitally important part, there was no such concentrated heat-producing food as cane sugar. Quite manifestly, it was physiologically impossible for the human bodily mechanism to become adapted to make use of such a food without suffering organic strain, unless it be in very small quantities. On the other hand, when sugar is eaten in considerable quantities together with other foods, it is slowly inverted and, during this process, especially in the slowly acting stomach, there is apt to be fermentation resulting in the production of CO^2 and other acids, and probably alcohol.

Moreover, it is only possible and reasonably safe for us to use sugar in its refined state at all for the reason that nature has been prodigal in her endowments to us humans, giving to us an excess of physical vitality beyond our actual needs, which enables us for a time to stand up under considerable organic and cellular strain. How long a time that is in individual cases none can know.

Besides, the limited amount of sugar that any one may safely consume is still further limited by the amount of other heating foods, fats and starches, that coincidentally are being consumed.

The danger in sugar lies in its unnatural concentration. Nature placed sugar in the sugar cane and the sugar beet in a more or less diluted concentration. Animals eating these entire products are vastly benefited by the unconcentrated carbohydrate represented in this sugar content, together with the associated carbohydrates, resins, gums, salts, etc. Even the plantation human and brute workers are said to benefit greatly in health, the former from chewing, the latter from eating, the raw sugar cane, out of which they extract the just named food properties in nature's own proportions and perfect combinations; as we would reasonably expect. Give nature a chance and she will always work seeming wonders. It is the unnatural that plays havoc with human bodies; and it is the devil of unnaturalness out of which civilization has made a god, that is playing havoc with the bodies of civilized mankind.

It has been stated of David Livingstone in Africa that while no white men could last in the equatorial jungle for more than a year, because they demanded more luxurious foods, Livingstone subsisted for long periods on a few sticks of raw sugar cane and went on year after year in good health.

White sugar is the most unnaturally concentrated foodstuff we possess. Yet in North America every man, woman and child consumes, on an average, 100 pounds per year. In addition, they consume enormous quantities of the next most concentrated of civilization's foods, white flour and refined cereals, all also remarkable for their heat-producing properties. And with these are consumed enormous quantities of unnaturally concentrated peeled and boiled and drained and salted and mashed and creamed and fried potatoes. Equally enormous quantities of concentrated table syrups, the refined products of the sugar refineries; also jams, jellies, marmalades, all made with white sugar, are consumed.

And North America leads the world in the prevalence of diabetes.

Of course, one may not be the cause of the other. We must not jump to conclusions. We always get nearer to the truth by long turning all such problems over and over in our minds. In thinking it out, however, keep this other fact in mind; no non-sugar eating animal—meaning refined sugar—ever has the disease diabetes. Nor does the savage who knows absolutely nothing of refined sugar and its associate denatured carbohydrate foodstuff, refined white flour and refined cereal foods.

However, if none of the drawbacks to the extensive use of refined sugar to which I have alluded existed, the fact that it is directly responsible for a large part of the digestive disturbances and distress from which civilized people constantly and increasingly suffer, ought to be enough to condemn all but its most temperate use, and then always and only when its deficiencies are made up by the intelligent, coincidental use of other natural foods rich in the elements in which it is so deficient. For digestive disturbances are, and must of necessity be, to a great extent, disturbers of what physiologists call body metabolism. That is the process that goes on in the individual cells of the body by which food is built up into living cellular substance and the worn-out cellular substance is carried away in the blood stream and thrown out of the body.

The very first movement in the carrying out of this process is the digestion of foods. The fact that refined sugar does thus upset digestion must be ample evidence of the unnaturalness of sugar and, at the same time, ample evidence of its injuriousness, because it must disturb the metabolic process, thus disturbing the body-building activities of the individual body cells, which are confined rigidly to doing the best they are able to build the body out of the building substances supplied them by the digestive system.

There is one fact that the reader is urged to get fixed in the mind, in this connection, viz., that natural foods do not cause digestive disturbances, except to the digestive organs already in a disturbed state through eating of much unnatural food.

But there we are. In spite of the distress and physical disaster that reason ought to tell us should come upon us as a result of the free use of so unnatural a food product as refined white sugar, we average for every man, woman and child in North America about one third of a pound of this so-unnaturally-mutilated foodstuff every day.

But we must still be careful not to jump to conclusions and in so doing decide that human disease is caused by excessive use of refined white sugar. It may be, or a lot of it may be, but let us not make any final decision upon that point, as yet.

What of refiners' syrup? Only one of these can be said to be, theoretically, a little better than refined white sugar, viz., corn syrup. This syrup is supposed to be glucose and, if chemically pure, it should be as easily absorbed as pure honey. For glucose is a monosaccharide and does not have to be inverted before it is absorbed. Moreover, glucose is the very form to which sugar or carbohydrates of all kinds are reduced by the cellular activities of the body before it is allowed to enter the systemic circulation of a normal animal. Pure glucose would, therefore, be a great economy upon the bodily energies, since it would require no utilization of body energy to prepare it for absorption or final oxidation in the tissues for the liberation of body energy and heat. But even it would have to be used in small quantities to avoid excess.

For, even if corn syrup were known to be absolutely free from foreign chemicals, it is open to the objection that it is as concentrated and as unnatural a product as is white sugar; almost as free from valuable natural mineral salts, gums, resins and aromatic properties.

Still, as between uncontaminated corn syrup or glucose and refined white sugar, in equal quantities, the choice must lie with the corn syrup, since it is far less liable to cause fermentation while undergoing the process of inverting, because it does not have to undergo this process. It is ready for immediate absorption. But always great care should be exercised to use even glucose—or any concentrated refined sweet—with great moderation, since all, save honey and natural sweet fruits, are entirely unnatural, and only natural foods can in the last, long end really benefit.

Refiners' Syrups, I have already pointed out, are practically watery solutions of refined white sugar, and the comments already made upon white sugar apply equally to these products.

Molasses.—This, too, has been already sufficiently commented upon, only to be condemned as a most unnatural food with the exactly opposite fault of refined sugar.

Honey.—Is it not strange, is it not almost ridiculous, that we gorge upon unnatural sugar, syrups and molasses, when we have a most delectable natural sweet in honey, a product of nature, a natural food for the young of some of nature's most intelligent insects? This natural sweet is rich in saccharine properties, also very rich in mineral salts (about 25 per cent.), and in gums, resins and aromatic properties. Honey is a natural monosaccharide. Honey does not require digestion. It does not have to be inverted. It is ready for immediate absorption into the blood so soon as it is swallowed. It does not irritate the mucous lining of the normal stomach. It is slightly laxative. It has not the tendency to ferment or to cause fermentation in other foods that is possessed by white sugar.

Sweet Fruits.—Perhaps the most sensible source of sweets for the satisfying of the craving for saccharine foods, which is so nearly universal that it must be physiological, is the use of the naturally sweet fruits, dates, figs, raisins, etc. These contain a natural sugar, levulose or fruit sugar, a monosaccharide which requires neither digestion nor inversion. These fruits nourish the body as well as energize it, and they tend to prevent putrefaction of other foods in the large bowel, at the same time assisting in evacuating it promptly of its contained waste.

If we cannot thus satisfy our craving for sweets, then the next most sensible source of sweets is honey. Of course, honey is equally a natural sweet and equally beneficial, but so delectable that it is more apt to be eaten in excess.

But alas and alack! We are civilized people. And civilized people have a long and thorny road yet to travel before they can be expected to do the sensible thing in the matter of choosing and eating their foods. Insidious habits have us in their clutches and we find it easier to yield and pay the price than to yield to the habits of common sense—until it actually comes to paying up to nature, and then we generally prove to be rotters and squeal most frightfully. We do so hate, when the time comes, to pay our gambling debts to Fate. We are such rotters that we generally blame it all upon God and say it is His will—rank blasphemy!

In taking stock of the civilized habits that are not natural and are, therefore, not calculated to build natural or normal bodies, note this unnatural habit of eating such enormous quantities of unnatural sugar. Add this unnatural habit to those other habits of eating so much unnatural white flour, refined cereals, well-bled and unnatural flesh foods, peeled and boiled and drained potatoes, pasteurized or sterilized milk and other dairy products made unnatural by processing. But it is still too soon to decide what relation these food habits bear to the omnipresent diseases of civilized peoples. Just keep in mind that peoples who do not have these unnatural food habits, simple races that live upon quite natural foods, do not have these diseases. It may be well, too, to remember, while considering the probabilities, that God did not intend that we should be diseased, that He did intend that we *may be* well, that entirely natural bodies must be disease-free bodies; and that only natural building materials can be expected to build natural, that is to say, normal or disease-free bodies.

Preserves.—This term usually implies fruits preserved in more or less concentrated solutions of cane sugar, refined white sugar.

Fruits.—These are the very best alkalinizers of the blood and body tissues that we have any knowledge of, just as refined sugar is one of the most powerful acidifiers that we have any knowledge of, in all the range of human foodstuffs. Fruit is also one of the very best sources of the most unstable vitamin C, the food accessory substance that prevents the development of scurvy and a host of kindred, but less well-defined, affections of the human body—probably early and very slowly progressing manifestations of scurvy. When fruits are cooked, these vitamins are to some extent destroyed, except those inhering in the very acid fruits. When fruits are cooked in strong solutions of sugar, their alkalinizing potentialities are destroyed.

Fruit preserved in cane sugar is almost certain to cause fermentation, unless used in the most conservative quantities; and such preserved fruit is, for most people, very difficult to digest.

Fruits preserved in strong sugary solutions are of doubtful benefit to most persons and absolutely harmful to very many who try to make use of them as foods.

The same remarks apply to fruits preserved in pickle.

Fruits preserved in cans or bottles with little or no sugar are a vast improvement upon those preserved as jam, jellies, marmalades, etc., in strong sugary solutions. To the extent that cane sugar, but especially white sugar, is added, they are, of course, lessened in value over the natural fruit. They are also lessened in value as foods or body vitalizers by peeling and heating, but it would be distinctly untrue to say that properly canned or bottled fruits are in any sense injurious. They cannot be as health promoting as natural fruits, but they are very much more valuable foods than fruits preserved as jam, marmalade, etc.

Dried Fruits.—These, when properly prepared, by simply evaporating the water from them by the rays of the sun, are natural foods. When they happen to be the sweet dried fruits, as raisins, dates, figs, prunes, they are truly wonderful foods. Like almost all natural foods, they are rich in mineral salts. Like all natural foods, they are all also rich in vitalizing elements that the chemist cannot find.

The chemist can only find what is left after the vital spark has fled, so to speak. He has no means of analyzing living tissues and knowing in what relation the chemical elements which he finds stood to the living principle that had animated those chemical elements.

It is this mistake of the chemists that has put the world astray in the matter of cooking or otherwise preparing our foods. Because the same chemical elements can be found in cooked foods, by chemical methods, that are found in the same foods before they have been cooked, it has been assumed, though by no means proved, that cooking improves food because it is supposed to be unchanged chemically yet made easier of digestion.

Both of these assumptions are wrong, though natural to the mind that starts out with the unproved premise that nature is not all sufficient.

There is a vital change, if not a chemical one, effected in foods by cooking; and many, if not most, foods are easier to digest when uncooked, especially to the normal digestive organs.

In dried fruits there is not only an abundance of mineral salts, undisturbed by cooking other than as nature cooks in her great solar oven, but there is also an abundance of potential energy in the plentiful supply of fruit sugar. This fruit sugar is a monosaccharide and does not have to be inverted or digested by the secretions of the digestive tube. It is ready for immediate absorption, therefore available for immediate use by the body as a source of bodily energy without any tax upon the energies of the body to prepare it for the oxidation that will convert its potential into actual energy. Fruits also, whether dried or fresh, all furnish laxative properties, thus materially assisting in the prevention of putrefaction or decomposition or food rotting within the food canal. They also oppose the development of those bacteria in the intestine which are the cause of putrefaction, therefore they oppose the development of self poisoning from the bowel.

The artificially dried fruits are a good second best—second best to the raw fruits. Exception must be taken to those artificially dried fruits that are sulphured, or in any other way chemically treated. The best dried fruits are those that are dried in the sun, since all such foods are vitalized by absorption of the radiant energy vibrations from the sun. However, the fruits dried in evaporators are deprived only of their contained water, and are of very decided value as foods when the more natural raw fruits cannot be had.

I have now said all that I have room to say about fruits except the most important thing of all: viz., fruit, unspoiled by cooking and fresh, has the power to quickly change the intestinal flora of the bowel. That is, it can quickly change the character of the bacteria that teem in the intestine.

When we overeat, when we eat between meals, when we eat extensively of meat, eggs, cheese, fish, and other strongly protein foods, these bacteria of putrefaction multiply enormously in the food waste within the food canal, as demonstrated by the vile odors emanating from the bowel discharges of persons so eating. The products of such decomposition are taken up by the blood and constitute the greatest factor in the production of auto-intoxication or self-poisoning.

Fresh fruits have the power to kill off these putrefying bacteria and so prevent this self-poisoning. But this property inheres in the fresh acid fruits more than in the dried sweet fruits, or artificially dried acid fruits, although it inheres in all fruits to a marked degree.

The meat eater should, therefore, place himself for one or more days at a time upon a purely fruit diet to delay the onset of diseases. Once each week would not be too often.

But who in civilization, save a few "cranks," makes much use of fruit as food, save in the form of acid-forming preserves? Who looks upon fruit as food? Not many. Yet that is the very thing that he who would learn how to be disease-free must learn to do. Fruits may be dainty palate ticklers, but that is not their purpose in the scheme of nature. They were not intended to be simply eaten at the end of a meal—crowded into the already overcrowded stomach—nor to be eaten between meals. Fruits are among our very best human foods and must become known and used as an essential part of many entire meals, if not the chief item of such meals.

Vegetables.—This is a subject important enough that a whole book might be written about it. The way in which civilized cooks spoil these most valuable of all our foods would fill several chapters. But I shall have to touch all too lightly upon this folly. I hope, however, to say sufficient to impress upon the reader that it is vitally important to awake from the slumbrously stupid procedures that have come down to us from our distant ancestry of a more ignorant past. Vitally important, that is, to those who would become more and more resistant to the disintegrating influences that result in human disease; to those who would remain vital and increasingly useful, both to themselves and their kind for twenty-five to thirty or forty years longer than is now the average period of useful, energetic and joy-filled life.

There are some, mayhap many, who will smile at this suggestion, but it is ignorance that prompts the smile. Enlighten these same people, if they will but permit it, and they will pity the ignorance in themselves that caused them to smile at the suggestion that the average useful, thrilled, human life may be extended thirty to fifty years.

Vegetable foods, of course, properly include all edible substances not of animal origin; thus they include all fruits and nuts. But I limit the meaning of the term here to its ordinary use, embracing only leaves, stalks and roots of certain edible plants.

Potentially, these are very vital foods, a natural source of great vitalization of the human body. Actually, the civilized human body receives very little vitalization from this great, natural fountain of vitalization. Reason? Spoiled in their preparation.

The reader is urged to call to mind, in this connection, what I have already said several times concerning the quality of naturalness in foods in relation to the prevention of disease and the prolongation of life. Be sure to recall that only natural bodies can be well or healthy bodies and that only natural foods can possibly build natural bodies, that is, healthy bodies.

Only a few pages back I referred to the impossibility of the chemist finding by his analyses the vital principle in foods. This principle is only present in vital or living foods, and it is only dead foods that can ever be analyzed. Analysis and vitality are antithetic to each other.

Now it is a property possessed by vegetable foods that they can preserve for comparatively great lengths of time their vitalizing principle, even under storage conditions. They preserve this vital principle, more or less, until decay sets in, a process that is quite long delayed in most vegetable foods. Untreated animal flesh and animal products of all kinds will also vitalize, more or less, until decay sets in, but they immediately begin to decay or putrefy when the animal is killed, therefore soon poison the eater of them instead of vitalizing him.

I have, however, elsewhere pointed out that nothing can retain this vitalizing principle after it is subjected to a degree of heat sufficient to cook it thoroughly.

It is a fact that most of the vegetables used by civilized peoples are cooked—generally super-cooked. If cooked by a "good cook" this is almost certain to be the case. It is generally true that "good cooks" do not believe that vegetables are "well cooked" unless they are cooked so long that they are almost "mushy," and, in the case of leafy vegetables, until they have lost almost all of their original color. Intelligent persons, if they realized that the longer vegetables are cooked the less vitalizing they become, would not do this so stupid thing. And more, none would ever do it if it were realized how much, how completely, in fact, such cooking destroys the delicate flavors of the vegetables. Others besides cooks would never allow vegetables to be so softly cooked if they once realized how valuable to both digestion and the preservation of the teeth the chewing of the less cooked or raw vegetables is.

However, devitalizing, and therefore stupid, as the practice of prolonged cooking of vegetables is, it is the least measure of food spoilage of which "good cooks" are guilty.

"Good cooks" very frequently thoroughly wash vegetables. That is quite right, provided it is just a wash-off with water. But frequently they allow vegetables to stand in water for some time and then wash again.

I have dwelt extensively upon the value of mineral salts in the vitalization, and, therefore, the health, of the human body. Well, soaking vegetables leeches out a great deal of the most valuable mineral salts, also a lot of the delicate flavoring associated with these salts. But the "good cook" does not stop here. She—or it may be he—almost invariably boils vegetables and then pours the water in which they were boiled down the sink. The "very best cooks" do not even stop here. They boil the vegetables in "two waters" and after each boiling throw away the water in which the vegetables were boiled. But the really-truly "expert cook" does not stop even here. This expert adds a "bit of salt" and a "pinch of soda" to the water. Now how much mineral salt, vitamin or other vitalizing substance does the reader suppose still is retained by the vegetables after all of these "expert" procedures? You don't know? Of course you do not, or you would not do them. But harken intently and I will tell you—and it is important that you should know. None. You might as well feed your family sawdust.

I have overlooked the truly awful habit of some "good cooks" of cooking fat meat in with some vegetables as cabbage, brussels sprouts, etc.; also the habit of removing thick peelings from such roots as carrots, turnips, beets, etc. These are all bad practices, but they can be tolerated, if the vegetables are otherwise not "well cooked," but properly cooked, since, unlike the grains, the salts and cellulose of root vegetables are well distributed, as a rule, throughout the body of the root substance, save in a few, like the potato.

But how should vegetables be cooked? I answer, most, or many of them, should not be cooked, for reasons already given; cooking destroys their body-vitalizing properties, though not always their body-building properties. Cooked vegetables are dead vegetables. Uncooked vegetables are vital and capable of imparting their vitality until they begin to decay. This condition of vitality will be understood when it is realized how long uncooked vegetables will "keep" but how quickly cooked ones will decompose or decay. The bacteria of decomposition find it difficult to attack the vital uncooked vegetable, but the devitalized, cooked, dead vegetable matter invites attack by the microbes of putrefaction or decay. And, since it is true that we become what we eat, so are these microbes invited to attack the human body that is largely built out of these devitalized and devitaminized and denaturalized foods—these demineralized, soda-impregnated, salt-extracted, heat-destroyed, cooked vegetables.

Yet it will be a generation before we can hope that these vital-food truths will even have begun to find a general lodgment in the civilized brain. During all that time we shall have mostly cooked, dead vegetables. However, a cooked, dead vegetable is the better for being properly cooked, if it can be said there is a proper way of doing a generally wrong act. I say generally because there are some vegetables that ought to be cooked—but they ought never to be boiled.

The way to cook all vegetables is to bake or steam them. No butter, fat, salt or other seasoning should be added while cooking.

Nuts.—I shall not comment at length upon nuts in this place, since who, among civilized peoples, save a few "cranks," ever uses nuts as real food? O yes, occasionally as a dessert, when the stomach is already stuffed to repletion, an utterly silly procedure, but they are not even then looked upon as real food; just something to "top off" with. Yet they are among nature's most perfect foods. Perhaps that is why civilized peoples refuse them a place among their body-building foods and only use them to assist in destroying the body by cramming them into the food canal when there is so much other food already within it that there is little likelihood that they can digest. Such would truly be in line with the other stupid food and feeding practices of civilized peoples.

Most of the foods of civilized peoples are acid-forming —and these acid-forming foods are the cause of acidosis. Further on the reader will learn that the blood of a healthy animal must be alkaline, that it is intended by nature to be kept alkaline by foods that contain an excess of alkalis over acids in their chemical composition. The blood of a living animal never can become actually acid. If the blood or body tissues of a human being should ever turn ever so slightly acid, that human body must instantly die. To have the blood turn relatively less alkaline than normal means sickness. This condition is called a relative acidosis. And, while relative acidosis is a disease in itself, although not yet properly recognized by the textbooks and the "authorities," it is also the primary cause of most of our minor or common and many of our major diseases. Acidosis is the devitalizer that permits other, apparently more direct, causes to act, and in the absence of which they could not act. Our foods should be largely alkaline.

Most readers will now feel quite competent to decide whether there is any connection between the foods and feeding habits of civilized peoples and their omnipresent diseases, but I ask that this be not yet attempted. Just keep in mind still that savages and simple peoples are not diseased and that they are not users of the unnatural foods of civilization—but when they do become users of such foods they then begin to die off like flies with civilization's diseases.

CHAPTER SEVEN

THE CIVILIZED (?) BREAKFAST

When we know that only natural bodies can be healthy bodies, and that natural bodies cannot be built out of any other than natural foods, what can possibly be expected of civilized human bodies built up out of foods as unnatural as those discussed in preceding chapters other than that they ought to become diseased?

Going back over these foods with the mind's eye, is it not to marvel that, after all, there is so little human disease, omnipresent as human disease is—among civilized peoples?

Nevertheless, eating unnatural foods is but a portion of the daily and hourly insults that civilized human beings offer to their Life Principle in the way of obstructing it in the effort to build normal, healthy, never-sick human bodies.

I referred to white flour as an unnatural food, and such it surely is, however it may be cooked or prepared. The best of all ways in which white flour may be cooked is in the form of bread. Yet white bread is so unnatural that animals fed exclusively upon it quickly fall ill with multiple neuritis and soon die, if the exclusive diet is continued. What, then, is to be said of the other ways of cooking white flour: pastry, rich cakes, pancakes, waffles, hot biscuits, doughnuts, fried cakes, and the many other ways in which white flour can be, and is, made more unnatural and indigestible.

Think of the denatured, the desiccated, factory-cooked cereals, bad enough in themselves, but made much worse by being smothered with sugar when being eaten, and generally refined white sugar, too.

Keep in mind that these are almost pure, or at least very rich, starch foods and that starch foods are not digested by the stomach secretions, but by the ptyalin ferment secreted along with the saliva; that is as far as digestion in the stomach is concerned. Let the mind take in that fact for at least a fraction of a minute. Now try to realize that saliva cannot be mixed with starch unless it is chewed into it. Then recall that almost invariably these starchy cereals are supped, practically drunk, without so much as contacting the saliva, except in minute spots here and there as the food mass is shot through the mouth. Now try to picture these starches passing into the stomach minus saliva with which to be digested and remaining there in the presence of heat, moisture, bacteria and an acid medium for from four to six hours often, and what do you suppose becomes of them? Do you think they are turned into the highest kind of body energy which foods are capable of producing with the least coincident drain upon the energy already inhering in the body? By no means. Under such conditions starch is more apt to ferment and break down into alcohol, vegetable acids and carbonic acid; all irritants to the delicate lining of the stomach, none of them in any sense food, and all systemic irritants and depressants.

Yet the eating habit just discussed is the habit of, perhaps, 95 per cent. or more of civilized people, especially of Canadian and American people who have taken on the "rush" method of living so thoroughly that the enjoyment of a meal by lingering over it is almost unknown. This comment applies particularly to breakfast.

But there are a lot of people who think they have a lot of real knowledge about diet who take comfort in the thought that they do not eat the conventional cereal breakfast. No sir! They eat toast. And toast is dextrinized by cooking. Do these "experts" in the art of living eat toast made out of whole-meal bread, at least several days old, dried out until the flavor resembles nuts and the bread has a slightly sweet taste? Do they slowly toast this bread until it becomes a delicate, appetizing brown, toasted through and through, a slice of it dry enough to snap when broken across? Not one toast eater in 100,000 so prepares toast. No, toast is made out of fresh white bread, made by so closely contacting fire that a partially carbonized or burnt scale is formed over each side and partly scraped off, the so-called toast then soaked while hot with "lots of good butter." Such toast is about as much dextrinized as a slice of limburger cheese or a weiner sausage. It is also about as much worse than white bread or refined cereals as these are worse than whole-grain bread, or whole-grain cereals, because it is far, far more unnatural. It is just as doughy as fresh white bread and its starch granules are saturated with melted grease so that neither saliva nor any other digestive fluid can reach or contact the starch to digest it. Could food silliness go further? Think of these grease-soaked, partially-carbonized, unmasticated, therefore non-salivated, lumps of half warm, soggy dough passing into the digestive tract and try to imagine them as building or energizing a human body. Again, think of them being eaten, as is often the rule, with marmalade or jelly and washed down into the stomach with gulps of strong, sugar-sweet coffee or tea, and—but further comment is superfluous for the individual who has any slight respect for his or her body. The other kind cannot be reached by any means whatever, short of actual disease or threatened death.

There are a score of equally silly habits connected with the civilized breakfast, but space does not permit their consideration; and surely I have said enough to point out the unnaturalness of most of our civilized feeding habits at the first meal of the day. Add these unnatural feeding habits to the unnaturalness of civilization's foods already pointed out and continue to consider whether these point to a possible connection of civilization's foods and feeding habits with civilization's diseases—but do not yet come to any conclusion. Just keep in mind while considering that savage races who live simply, upon natural foods, are not diseased at all, and civilized races are diseased—terribly diseased.

CHAPTER EIGHT

OTHER FOOLISH FEEDING HABITS

Would it not be something to congratulate civilization about if it were only the first meal of the day with which we practised such silly habits? But, sad to relate, luncheon is a meal very generally connected with far more silly habits than is breakfast. Bad as our breakfasts are, they generally consist of one or two simple dishes only. Lunch frequently consists of several most unnatural foods, almost always incompatible foods, foods that retard or prevent the complete and normal digestion of each other. Besides, these unnatural, incompatible foods are eaten with little more attention to mastication than a dog gives to a piece of meat, when the truth is they should, generally speaking, have about as much chewing as a dog gives to a bone. Even then they would not, generally, be well digested, for the reason that incompatible foods cannot be made to digest well in the presence of each other.

Incompatibility means that foods that are intended to be digested in opposite kinds of digestive secretions are eaten at the same meal. It is manifest that a food that can only digest in an acid medium cannot be digested coincidentally with a food that can be digested only in an alkaline medium, if both foods are mixed together in the same meal, for a digestive fluid cannot possibly be acid and alkaline at the same time. One or the other must be disintegrating and irritating locally and poisoning generally, while the other is incompletely digesting, therefore either fermenting or decomposing, except in that stomach that is powerful enough to be primitive.

I have touched upon one of these errors, in the early paragraphs of the preceding chapter, when referring to eating the starchy cereals without chewing. Proteins are digested, in so far as stomach digestion is concerned, by the pepsin and the acid secretion of the stomach glands. Starches cannot be digested by the acid stomach secretions at all, but if they are well mixed with the alkaline saliva secreted by the salivary glands emptying into the mouth, by much chewing, they will be digested during the chewing process and will also continue, under proper feeding conditions, to be digested by the salivary enzyme or ferment, called ptyalin, for upwards of two hours after they have reached the stomach.

These proper conditions are that they shall not be eaten at the same time as strongly protein food.

Nature has most wonderfully adapted our digestive organs to meet our reasonable needs. If there is only starch food in the stomach there is no need for acid gastric juice to digest it, and nature has arranged that little shall be secreted. For it would make no difference how well saliva were chewed into starch foods, the saliva would cease to digest the starch immediately it contacted acid; and stomach juice is always acid. Nature intends the starch foods to be digested, therefore she holds back the acid secretion. But if richly protein foods, such as lean meat, fish, game, cheese, eggs be taken into the stomach, this protein food can only be digested by the stomach secretion known as acid gastric juice. From nature's standpoint it is more important that protein foods be digested than that starches be digested, for if not digested they quickly decompose and turn to poisons. Nature, therefore, immediately pours into the stomach acid gastric juice for protein digestion, and starch digestion that is being carried on by the saliva contained in it must immediately cease. Starch digestion cannot possibly go on in the presence of the acid stomach juice.

But civilized peoples continually eat practically pure starch foods and practically pure protein foods at the same meal, even in the same mouthful. Both are indistinguishably mixed together in one mass. What, think you, is going to happen to them? Are they both, or either of them, going to be perfectly digested? From the thoughtful the only answer is a smile at the simple-mindedness of the questioner.

Yes, I know well it is done and has been done by thousands of civilized peoples at every meal they have ever eaten. But I know, too, that disease runs riot among the civilized races, diseases not known to the simple or savage races at all, who do not so eat. I know also that these diseases do not flourish without a cause.

Think of the ham, beef, cheese, egg, weiner, etc., sandwiches; the white bread and meat or eggs or fish or cheese eaten in a hundred combinations by almost everyone at luncheon. Consider the coffee, tea, milk, cocoa, pickles, catsups, sauces, condiments, gravies, liquors, cakes, puddings, pies, nuts, acid fruits, iced drinks and other soda-fountain concoctions crowded into the same stomach with these.

Do not understand that I unreservedly condemn all of these foods. I am merely commenting upon incompatible food combinations, in general, if not universal, use by civilized peoples. Who is there who would think of mixing all these same ingredients, or the same number of them, as are generally mixed into one mess in the average stomach after a full "good meal," and then sit down to eat the impossible mess? No one in his senses. And if such a mess is not fit to eat when compounded outside of the stomach, by what kind or process of thinking do we arrive at the idea that it can be fit to be compounded inside of the stomach?

There are other civilized eating habits just as foolish—many of them. I cannot even refer to all such silly habits. Yet there is one that I must call attention to: viz., the habit of eating strongly acid foods and starches at the same meal. True, the "strong digestion" often gets away with this practice without suffering local disturbance in the stomach, but it is often this owner of the "strong digestion" who suffers from the most incurable stomach symptoms in his later years. More often he is a sufferer from some chronic disease of some other organ, apparently in no way associated with the digestive tract or the kind of food that is taken into that tract, the cause of which seems hidden in mystery, therefore is attributed to "the will of God."

Acid grapefruit or orange and starchy cereal or white bread toast are often eaten together. From what has been said above about starch digestion by the saliva in an alkaline medium, it can readily be understood that starches eaten with acid fruits cannot be well taken care of by either the secretions of the mouth or of the stomach. The stomach secretions can never digest starch under any circumstances and saliva is never able to digest starch in the presence of acid. What happens to those undigested starches? I have already explained and need not do so again. But what folly it is to let this happen to good food. For starches are good food. Undigested starches, however, are not good food. When they remain too long in the digestive tract undigested, they are akin to poisons.

Before leaving this subject I would make it clear that all starches that are bolted without being thoroughly mixed with saliva by chewing it into them, all starches that are eaten with strong protein food, all starches eaten at the same time as strongly acid foods must pass through the stomach almost entirely undigested. Starches entering the stomach with other foods which prevent their digestion cannot leave the stomach until the other foods which prevent their digestion are sufficiently broken down by the stomach fluids to be able to leave the stomach. This generally means from four to six hours, even eight hours in some cases. In such cases, fermention of the starch is very apt to occur, resulting in the formation of carbon dioxide, alcohol and vegetable acids. It is true that all starches may not thus be broken down when the stomach is a powerfully functioning organ and the digestion of the other foods that are intended to be digested by its juices is quickly completed. These starches then pass on into the intestine with the semi-liquid food mass called chyme and are there digested by the secretions of the pancreas and the cells lining the intestine. But in the slowly digesting stomach—and that means most stomachs in civilization—there will be little non-fermented starch under such conditions.

It would require the space of a small volume to discuss food incompatibility in all its various phases and details, therefore I must leave the subject here; only remarking how food-foolish we are when we make pies out of acid fruits and white, starchy flour, the indigestibility of the latter being made more certain by thoroughly incorporating the starch granules of which it is composed in shortening or fat to make "short" pie crust. Only one worse thing could be done, as far as digestion is concerned, and that is the addition of plenty of white sugar—which is never left out by the "good cook," you may be sure. I shall merely mention meat pies, a combination of almost pure protein and pure starch, the granules of the starch always incorporated in fat as outlined above.

Again I wish that food-foolishness ended with the first and second meals of the day. The "chief meal of the day" ought surely to be a very rational and sensible one. Well is it? No! It differs from the others in being worse; worse in the fact that it consists, as a rule, of a greater quantity of foods, as well as a greater "variety" of foods. In addition to incompatibility there is excess quantity and more kinds of foods.

The mischief caused by too much food will be appreciated when it is well understood that too much food means more than the body needs. Oh, but what harm can it do to the body to have more good food than it needs? Can the body not use what it needs and refuse the rest? Yes, and it does just that. But the body cannot just refuse it and stop there. Food that passes into the body must be either built up into the body, burned up in the body, or, what is not thus used, quickly passed out of the body; or it will kill the body. The body will not, can not, make use of more building material than growth and repair of tissue demand. It cannot burn up and make use of more food than is required to keep the body energized and warm. More than is needed for these two purposes is too much food. The excess must be stored up as excess baggage in the form of fat or thrown out of the body. To do so places a heavy tax upon the organs of the body and it also uses up a lot of the energies of the body. For this food cannot be made use of by the body and can, therefore, serve no useful purpose. Nevertheless, it has to be digested, absorbed, circulated, sorted over by the liver, its poisons neutralized, its carbohydrates turned into liver sugar, all of its contents carried through many processes until it is broken down into simple chemical elements held in solution in the body fluids; then extracted from these body fluids and eliminated from the body by the kidneys, liver, skin, lungs, the lining cells of the bowel, etc.

This must all be done to prevent the accumulation of foreign substances in the body which would soon kill the body. But the systemic and organic effort thus forced upon the body to get rid of the excess food often takes more energy from the body than it obtains from the food that it has been able to digest, absorb and assimilate or build up into its body tissues, or make part of its component cells. Yet that is not all. The extra, and often continuous, effort thus thrown upon the organs of the body to rid it of excess food overworks them—irritates them—wears them out. The reader is asked to decide for himself what this extra effort thrown upon the vital organs of the body might be expected to result in. Especially is the reader asked to try to decide what effect this extra strain may be expected to have upon organs improperly nourished by feeding upon unnatural foods.

However, do not even yet make up your mind as to what relation the unnatural foods and bad feeding habits of civilization must bear to the diseases so universally present among civilized peoples. Just remember that the races that have different foods and different feeding habits do not have civilization's diseases, then read on. I shall soon ask the reader to make his own decision, but before doing so I want him to know just a little more about foods.

CHAPTER NINE

ACID-FORMING FOODS=ACIDOSIS=DISEASE

I said I wished the reader to know a little more about foods, but before telling more about them I want to say something else.

That something else is that the human blood, in health, is alkaline, the exact opposite of acid. If the human blood should ever turn ever so slightly acid the body containing it would immediately die.

Physicians speak of acidosis, and if you ask what that is, they are apt to say "acid blood," but they do not mean that the blood actually becomes acid. What they mean is that there is a relative acidosis, or that the body contains relatively more acid elements in proportion to alkaline elements than normal. If the blood were actually acid the body would immediately die from a positive acidosis. Cells cannot live in an acid medium.

Alkalis are soothing to cellular structures and the tissues and organs built out of cells. Acids are irritating to these structures. Which is one reason why human blood must never be acid, for if the blood is acid the cells and organs must be also, then they would die. Because the blood must never be acid it must contain more alkaline elements than acid elements, for alkalis neutralize acids by changing them into harmless salts.

I have already said there is in all bodies a normal ratio of alkali elements to acid elements, which means health. Any increase in the acids above this normal ratio is, to that extent, a tissue irritant. An increase in alkalis is rare and does not irritate, since the normal body reaction is alkaline. Acid increase beyond the normal ratio irritates the organs and puts the whole body on tension and strain. Irritation, tension and strain are, unavoidably, precursors of disease.

At once, the reader wants to know can this relative acidosis be avoided? I answer that I am not yet answering questions. Let us first enquire where the body obtains its acids and its alkalis, then the reader may be able to answer the question for himself.

One great source of body acids is the breaking down of the body tissues, especially the functioning or work-performing tissues, those which carry on its various and multiform activities. The fatty tissues of the body as they are burned or used up by the body also add acids to the blood. A third great source of acids is the foods we eat. Of course, it may be maintained that the three sources mentioned are all food sources, and that would be true, since the body tissues are really nothing less than organized foodstuffs. But it gives us a clearer conception of acidosis, its cause and consequent relation to body health, to separate them into food sources and body sources. This is for the reason that one source cannot be avoided or controlled, the other can. Acids resulting from the wearing out of the body cannot be controlled, except in an indirect and limited way by the taking of proper amounts of physical exercise out of doors, the increased oxygenation of the blood which follows such exercise increasing the elimination of all cellular debris. Nor should these acids be attempted to be controlled in any other way, even if they might be. They are physiological.

With food acids it is different. Acids from this source can be controlled, therefore the responsibility for acidosis and any organic or systemic irritation, strain or other untoward result of acidosis is upon the individual manifesting such result, and in no sense upon God.

Acidosis almost certainly never is the result of the wearing out of the body cells. When present, acidosis, one might say, is invariably due to acids taken into the body that might have been easily avoided. Since acidosis, therefore, is a condition which the individual produces for him or herself, the individual should receive and accept full credit for it or full blame. If acidosis is a beneficent thing, then the possessor of it should glory in his personally acquired blessing; but, if it is a baneful thing, then should he hang his head in shame and lower his eyes in humility—once he knows—and cease to wonder why "God afflicted me so."

Foods are classifiable into "excess acid" and "excess alkali" foods. Those which are called "excess acid" are those which, upon being broken down by the fluids of the body into their composing chemical elements, leave an excess of acid elements over alkaline elements in the blood and body tissues. The excess alkali foods are those which, when broken down in the body, leave an excess of alkali-forming over acid-forming elements in the blood and body tissues.

Broadly speaking, so as to not confuse the lay reader with long tables of data, the acid and alkali producing foods are as follows:

ACID-FORMERS

- All flesh foods including muscle meats
    - Game
    - Fish
    - Heart
    - Liver
    - Kidney
    - Brains
    - Tripe
    - Sweet Breads
    - Any other animal parts
    - Nuts (except almonds)
    - Dried beans
    - Dried peas
    - Lentils
    - Peanuts (ground nuts)
- All grain foods, especially white flour, refined cereals and polished rice. (Roman Meal is one exception among the grain foods. So are "Brekfus Puddin" and "Lishus").
- Sugar
- Tea
- Coffee
- Cocoa
- All fats and oils (Butter is acid-forming only in excess, neutral in moderate quantities)
- Egg whites
- Cheese

ALKALI-FORMERS

- All fruits (sweet or acid, fresh or dried, sub-acid or non-acid).
- All vegetables (fresh or dehydrated).
- Leafy vegetables are better alkalinizers than root vegetables.
- Egg yolks
- Almonds
- Milk
- All forms of milk.
- Roman Meal is strongly alkali-forming, because of its 25 percent. alkaline flax-o-lin content. Roman

ALKALI-FORMERS —*Continued*

Meal, Brekfus Puddin and Lishus are the only alkali-forming grain foods.

Citrus fruits — oranges, limes, lemons, grapefruit, citron, are all very alkali-forming. Although strongly acid to litmus or other chemical test, or to taste, they reform as alkaline carbonates, or bicarbonates, the normal alkalis of human blood, when broken down by the body fluids into their component elements.

The classes of foods which result in a relative increase of acids or acid salts in the body are pretty well known to dietitians and bio-chemists. So are those foods which result in a preponderance of alkaline salts in the body tissues.

Some authorities place prunes, plums, rhubarb and cranberries in the acid-forming column, because they contain small quantities of oxalic or hippuric acid, which are not readily oxidizible, and which must, therefore, be excreted by the kidneys as salts of these acids, which are somewhat irritating to the kidneys. But I can see no objection to these fruits on this account, unless the kidneys are below par already in their functioning power. Normal kidneys will readily excrete all such acid residues (have to do it anyway, because they are always present from other sources), and allow no systemic accumulation of them to act as a cause of acidosis. They all contain other fruit acids of great systemic value. Of course, if one were living largely upon the fruits in question, the situation might be quite different, for it is conceivable that an accumulation might occur.

These fruits, then, while they acidify the urine, usually taken as an indication that they add acid residues to the blood, are to be considered not as acid-forming to the blood, but the opposite. If prunes were acid-forming, I would surely be suffering from acidosis, since I eat two pounds of just common prunes every two or three days. I always eat them soaked, however, and never cooked with cane sugar added to them.

Many persons, even many physicians who are not dietitians, are puzzled as to how the citrus fruits and the tomato, which are so frankly acid to taste, or litmus, can be such strong alkalinizers. The explanation is that the acid portion is non-mineral and the alkaline or base-forming portion is mineral in its nature. The organic acid is quickly oxidized and disappears as carbon dioxide and water, while the alkaline mineral remains behind as sodium, potassium, etc., to unite with other substances to form salts: usually with carbon to form carbonates of sodium, potassium, calcium, lithium, etc., the very mineral salts which maintain the alkalinity of human blood. This explains why it is that these fruits are among the very best remedies for acid conditions, notwithstanding it is the custom of the physician who is not a dietitian to forbid their use in all acid states of the body.

As to the disputed acid and alkali-forming foods, if one is eating freely of those foods admitted by all investigators to be frankly alkali-formers, one need have no fear of eating reasonable quantities of foods near enough the border line to be disputed or doubtful.

Now I think the reader can answer for himself the question whether relative acidosis can be avoided.

Please note that from the above list one may choose from at least a score of vegetables and twice as many fruits, including a dozen kinds of berries, all alkali-formers.

Surely with sixty or more delicious fruits and vegetables to select alkali-formers from, also milk in a variety of conditions; and a long list of foods to select acid-formers from, it ought to be seen at once that we can make our blood normally alkaline or abnormally acidosic (a relative increase of acids over alkalis), at will, by crowding our diet with alkali or acid-forming foods.

While, theoretically, it ought to be easy, practically it may not be so easy. Food scientists have discovered that to maintain the proper balance between acid-forming and alkali-forming foods, and thus assure a non-acid or an alkaline blood, a bulk ratio of about 25 per cent. acid-formers and 75 per cent. of alkali-formers should be at least approximately maintained.

Do not hastily pass by this point. It is not only important—it is vitally important. Try to get a mental picture of what is meant by 25 per cent. in bulk of your day's food and also 75 per cent. in bulk of the same. This means that if you divide your day's foods into four portions of equal bulk, one portion should be acid-forming and three portions should be alkali-forming. One part and three parts. One-fourth and three-fourths. This means that only one-fourth of the bulk of your foods should consist of lean meats, eggs, fish, game, fowl, animal parts, bread, cereals and everything into which flour or meal enters, fats, candies, sugar, preserves, jellies, table syrups, honey, soda-fountain drinks, ice creams, tea, coffee, cocoa, chocolate, alcoholic liquors. If white bread, refined cereals: as corn flakes, cream of wheat, farina, degerminated corn meal, rolled oats, form a large part of the dietary, still less than one-fourth in bulk should be eaten, for these foods are all made artificially acid by milling refinement. And less still should be eaten if these refined cereal foods are eaten with large quantities of refined sugar. Four-fifths should consist of vegetables, fruits, milk and milk products. Of these, the best by far are the citrus fruits and leafy vegetables, preferably eaten uncooked, and milk, preferably unsterilized or unpasteurized. By controlling the intake of acid-forming and alkali-forming foods, relative acidosis can be easily avoided. Thus, too, can be easily avoided the organic and cellular strain and—whatever comes to the body when the organs are irritated and strained.

We have seen what we ought to eat and how we ought to eat to avoid "acid blood" or "acidosis."

Let us now see how the diet of civilized peoples corresponds with that which we have learned.

We have already noted that the diet of civilized peoples consists very largely of muscle meat, eggs, poultry, fats, white bread and no end of white flour products; from dumplings, pancakes and waffles to shortbread and pastry; corn flakes, cream of wheat and similar refined cereals, including fluffy rolled oats; peeled potatoes, polished rice, doughnuts, fried cakes, preserves, syrups, large quantities of refined white sugar. In addition, there are candies, ice creams and other ices without end, sweet drinks, sundaes and almost innumerable soda fountain concoctions. And some civilized people sometimes drink tea, cocoa and coffee.

There seems to be something not just right about that last statement. O yes, I have it. Many civilized people, nearly all, in fact, are positive slaves to the tea and coffee habit; say they cannot do without these stimulants. Which means they are habitues, tea and coffee drunkards.

And then there are the alcohol imbibers about whom nothing need be said. For generations it has been known that this practice of drinking alcoholic liquors has nothing at all to defend it. Those who drink alcoholic liquors are admitted to be in the class that follows wish or desire in all things, not "ought".

I could add other acid-forming foods and drinks, but are these not enough? For it is true that every item mentioned is an acid-forming food or drink, and just as true that these are the foods from which the bodies of civilized peoples are essayed to be built.

Who really makes fruits, vegetables, milk and dairy products, all our most efficient alkali-formers, any part of their real meal? Who really considers these as part of their real meal, their real body-building foods? The answer is: mighty few. Do not millions, in civilized lands, go through every day hardly touching any single item of these alkali-forming foods for every score of people who make such foods any real part of their daily sustenance? It must be admitted that this statement is too true, although it must also be admitted that it is slowly becoming less true.

O yes, many civilized people do eat vegetables, in a way, but are these not used more or less as a sort of accompaniment to or relish with the main part of the meal consisting of meat or fish or eggs—even all three—with bread or bread and peeled potatoes? And are not such vegetables as are eaten, in the vast majority of instances, boiled; boiled and the water in which they were boiled drained off and run into the sink? Yes, that, too, is true. And are not such vegetables—vegetables cooked in this outlandish way—

practically spoiled as alkali-forming foods? Yes, even this must be admitted to be true.

And do not most civilized peoples who eat fruits as food, and they are very few, cook them after peeling and add to them more or less acid-forming white sugar, generally rather more than less? I fear even this must be admitted as fact. And does not this peeling, cooking and adding of refined white sugar all but, or even quite, destroy the alkali-forming value of these fruits? Well, what of it? O nothing, only it leaves the diet of the vast multitude of civilized people an acidosis-building diet.

Well, what of it?

O, I was just going to ask the reader that question. Think it out. Think out the answer. It's an easy answer.

Recall that only natural foods can be even supposed to build natural or normal human bodies, that is to say healthy human bodies. It seems to me that much must be self-evident. Nothing natural can ever grow out of the unnatural.

Remember we found that civilized peoples live very largely upon unnatural foods; that, almost without exception, they eat more food than their bodily needs demand, thus straining their organs of elimination; that they eat foods intended to be digested by the saliva, yet they do not mix saliva with them, and, therefore, such foods cannot digest and must ferment and produce in the stomach alcohol, carbonic acid and vegetable acids; that they mix starch foods and acid foods together in the same meal, the same mouthful, often, and that starch cannot digest in saliva when acid is present; that they also mix pure proteins with pure starches in the same meal and mouthful and that starches and proteins cannot digest in the stomach at the same time; and, finally, they live very largely upon "excess acid" foods, which increase the acid residues in the blood above normal, thus lowering the body's "alkali reserve" below its normal protective ratio.

Cogitate and reflect upon these undeniable facts. Try not to think of them as facts that are merely interesting in an academic way, but facts that, since they concern our living habits and, therefore, our very lives, must concern us in a very vital way; in a way that nothing else that is material ought to affect us.

Then let the mind dwell for a time upon the fact that civilized peoples who follow these so unnatural feeding habits and who use these unnatural foods are so terribly afflicted with disease that we would be awed, appalled until we would shrink in horror overwhelmed by the catastrophe to the nations, if it had come upon us suddenly; then mentally visualize the simple or savage races who live simple, natural lives and eat simple, natural foods prepared in the simplest of ways, as being free from all this welter of disease; then consider what chance there may be that the diseases from which civilized peoples suffer and savages do not are due in large part to the foods and feeding habits followed by civilized peoples.

But do not yet make up your mind definitely as to the cause of civilization's diseases, for the unnatural living habits of civilized peoples have not all been considered, by a very large margin, in the foregoing chapters. "Still there's more to follow."

Of all the things you ought not to do, let me urge you not to say "blah! civilized peoples have been eating these foods and following these feeding habits for centuries." While this is all true, it is also true, far too true, that civilized peoples are tremendously diseased, wastefully and increasingly afflicted with diseases, and by maintaining an unprejudiced mind to the end you may consider that these so-unnatural foods and feeding habits are causatively related to these diseases.

Even you may yet be one of civilization's victims, therefore, it is worth while to have a care. By having such a care, it is possible you need not ever be.

CHAPTER TEN

CONSTIPATION AND DISEASE

Before leaving the consideration of the unnatural foods and feeding habits of civilized peoples as a possible cause of the omnipresent diseases of civilized races, there is one civilized (?) habit which, while not strictly a food or feeding habit, is so closely related to our foods and feeding habits that it is fitting to consider it in connection therewith.

I allude to the habit of constipation, a habit that has been called "the father of most human diseases," but wrongly so-called; for it is in itself a *result* of bad habits.

At the outset, I want to make it plain that constipation is not in the strict sense a habit. It may be partly a habit, but mostly it is a symptom.

That it is unnatural is proved by its total absence from the experiences of the less sophisticated simple or savage races, and from the lower animals that are in no way controlled by men.

Inasmuch as it is a habit, it springs from several sources, ignorance, carelessness, convention, prudishness, laxative and cathartic drugs.

Ignorance of the fact that when the bowel waste is not frequently evacuated, at least as many times daily as meals are eaten, the food waste decomposes more or less, and the products of this decomposition are absorbed into the blood as poison, is responsible for the second source—carelessness.

People have become careless of responding to the "calls of nature" to empty the bowel, because they have thought of the lower bowel as a sort of reservoir for the non-digestible and non-absorbable food waste, wherein it may be held until it suits the convenience or the whim of the individual to discharge it. Thus they have resisted the call.

But the evacuation of the bowel-contained food waste is a real body function as important as is the intake of food itself. Like every other body function, it is "most important." Like every other body function, it is improved in the power to function by exercising its function. Like every other body function, in proportion as it is not performed it loses power; in proportion as it is interfered with it tends to be destroyed. All this is in response to the natural law governing organic function, as outlined in "Basic Principles."

The fact that the bowel does soon cease to attempt to empty itself when its call is neglected or resisted is one of the most common proofs that there is such a natural law as the one just quoted. Constipation is but a sign that the interfered-with, the impeded or unperformed function of colonic evacuation is tending to be destroyed and to disappear.

Laxatives and cathartics are drugs resorted to often after the habit of resistance, just referred to, has caused a partial disappearance of the normal, spontaneous emptying of the bowel waste. In such cases the taking of drugs stands in the relation of a contributory cause to the habit already formed. But often, too, they are the primary cause. Civilized people overeat, crowd too much food and too many varieties of food into the digestive tract. Even when the call to evacuate is not resisted, this excess of food will often cause headaches or other symptoms of unpleasant character, and it is an almost universal habit to resort to "physic" in such cases for relief. "Physic," in the form of laxative or cathartic drugs, does for the bowel what it should be allowed to do for itself, or compelled to do for itself.

In "Basic Principles" I showed that any agent that substitutes or takes the place of function destroys that function. Only natural stimuli can induce normal function. Unnaturally-stimulated functions tend to be destroyed. Constipation, therefore, unavoidably follows in the wake of the use of laxative and cathartic drugs. Soon in some cases, later in others, but always in all cases in the end.

Many persons believe there is a proper and conventional time for one daily bowel movement, say at bedtime, or middle of the forenoon or afternoon, etc., and, in their estimation, no other time will do. There are others, prudish, "nice" persons, who seem to be possessed with the idea that an evacuation of the bowel waste is some kind of a disreputable proceeding that must by all means be done in the utmost secrecy. It must never be let out that such a habit belongs to these "nice" persons. Such people will actually suffer rather than retire from the company of others, especially others of the opposite sex, to respond to this so-important call of nature.

Both are pernicious practices, since both are opposed to the plan of nature.

There is one natural time to evacuate the bowel waste, and that time is the moment the call comes from nature. To postpone the response is to interpose an obstacle, the will, to the exercise of function. And to impede or oppose function is to tend to destroy function, as we shall find if we refer back to "Basic Principles."

As we have already seen, constipation is the very best proof we have that functions are destroyed by interference, to the extent that any attempted interference is effective in impeding function.

Now in "Basic Principles" we learned that: "anything that lessens the functioning or working power of any one body organ, cell or part, automatically lessens the functioning power of every other body organ, cell or part, through the circulatory and nervous interrelations which obtain between all the cells, organs and parts of the body."

Such is the unchangeable and inviolable law of nature.

Well, intestinal evacuation is certainly a body function, and a mighty important one. Constipation is as certainly a lessening or a depressing of that important function. As such, it must, according to the inviolable and unchangeable law of nature, lessen the functional or working power of every other organ in the body.

To lessen the functional power of every other cell or organ in the body does what? Nothing less than to lower the body's power to resist the environmental forces, as well as the inherent forces, which make for its disintegration, disease and death. There is no other conclusion possible.

Function is the manifestation of life. Its opposite is death. Whatever aids function tends towards life. Whatever tends to destroy function tends towards death.

So much for constipation in so far as it is a habit, which may be considered as a passive phase.

There remains to be considered the active cause, from influences acting directly within the digestive tube itself. These influences are traceable almost entirely to improper, that is to say unnatural, food.

Our long-ago ancestors, in whom our anatomy was developed to its utmost pitch of perfection, including, of course, the anatomy of the digestive tract, lived upon foods of a very coarse and fibrous nature. For the elaboration of such foods a very long muscular digestive tube was necessary in order that the body-building elements, as well as the body-energizing elements, might be slowly liquefied by the digestive enzymes secreted by the cells lining the tract, extracted from the non-digestible fibrous waste and then absorbed into the bloodvessels ramifying in the lining of the tube; all as it was slowly passed along the tube by the action of the muscles forming the walls of that tube. For, of course, their food did not pass along of itself, nor does ours. A very remarkable mechanism has been provided by nature to effect that purpose.

Starting at the upper end of the stomach a ring-like contraction of the circular muscular fibres which form the tube takes place. Then this ring begins to slip down along the tube, much as if it were a ring of metal pushed over the tube and then pushed down along the entire length of the tube, the ring being considerably smaller than the tube itself. This ring pushed down along the tube would push a certain amount of the contents ahead of it. If it happened a certain number of times a minute it would in a few hours push quite a lot of material ahead of it and pass it all the way along to the outlet of the tube about thirty feet away.

Well, this ring of contraction, or wave, as it is sometimes called, does pass along the digestive tube every so often and it ought to pass the contents along the full length of the tube in about nine hours, if the tube is in a healthy state.

I wish I did not have to trouble the lay reader with such stuff, but I am forced to roughly outline this process if I am to make clear the food-cause of constipation.

You must understand that our far-away ancestors developed, and had to develop, the kind of a digestive tube that I have described in order that they might subsist upon the coarse, fibrous foods which the exigencies of their lives supplied. Because of their foods, they could get along with no other kind of a digestive organ. But they passed their type of digestive organ on to us, which binds us for all time to their fibrous kind of foods. If they had to have the kind of digestive organ which they passed on to us to handle their kind of food, then we are as certainly compelled to have their kind of food in order that our digestive tract will function normally; for one was made for and by functioning upon the other; they belong to each other.

You see this peristaltic, or food-propelling, action of the muscles of the bowel tube is the sole function of those muscles. This function is not in the slightest degree under control of the will. It is a reflex function. Like all reflex functions, it must be stimulated by some natural contacts with the sensitive terminals of the reflex nervous system before it will or can act. In this case the terminals are located in the lining of the bowel wall. The natural contact stimulus is the fibrous waste matter in the food, just such food waste as our ancestors were habituated to throughout the age after age of prehistoric time when they were developing the human anatomy by their life habits to the perfection it had reached long, long before the historic period. Their long continued racial habit of eating foods with large amounts of fibrous material contained in them became fixed in human nature and anatomy and has become a law that can only be resisted at the cost of much peril to the race. See the law governing this principle as expressed in "Basic Principles."

Then what of our modern foods? We have already seen that the practice in civilization is to refine human foods and to remove from them, either by grinding and sifting, or by peeling, etc., the bulk of their fibrous waste matter. This does what? Leaves the remainder more delicate and dainty? Yes, it does that. But that is not all it does. And is it an advantage, from the health-of-the-body point of view, that this be done? Let us see. The removal of this waste matter also removes from our foods the natural stimulus to the muscular activity of the bowel wall by which the food mass is propelled along the bowel tube towards the bowel outlet. This means a slowing up of the intestinal current. Slowing up of the intestinal current means the decomposition of the protein contents and a fermentation beyond what is normal of the carbohydrate contents, the former resulting in the evolution of very depressing poisons and the latter of irritant acids, causative of catarrhal conditions of the lining of the tube. Catarrhal conditions of the tube lining still further delay the progress of the food mass through the tube and in another way also delay its digestion. Catarrh means a covering of the lining with slime or mucus and this slows up the secretion of digestive fluids, which delays digestion and causes more fermentation and decomposition of the proteins. Thus a vicious circle is set up, leading to a chronic state of body poisoning from the food canal; for slowing up not only adds to the fermentation and decomposition, but it allows more time for the absorption into the blood of the poisonous products thus produced.

This absorption of fluid also adds its quota to the abnormal state obtaining within the bowel, for it allows the food waste to become dried out so that it is with difficulty propelled along the canal or tube, thus the current is still further slowed. This again means more decomposition and fermentation and more absorption, and so the unnatural thing proceeds to the gradual destruction of the health of the victim. For what I have just described is not all.

The function of muscle is to contract, but it does not contract of its own volition. It must have a stimulus. The voluntary muscles receive theirs from the brain through the will, but the involuntary muscles must obtain theirs by contact with some other source, through the reflex nervous system. In the case of the bowel it is, we know, from contacting the fibrous food waste contained within the bowel. When this is absent, because of our food refinement, the muscles do not receive a normal stimulus, therefore they do not contract, *i.e.*, function, normally. Because of failure to function, they must lose power to function, grow weaker and tend to disappear, as we learned in "Basic Principles" must be the case.

Even this is not all. It is impossible to remove from our foods the fibrous waste and not simultaneously remove physiologically essential mineral salts. Such minerals are not only highly important to the well-being of the entire body, but they are of especial importance to the local structures of the bowel; the glands lining it and the muscles forming its wall.

In the absence of mineral salts, the bacteria of putrefaction multiply with enormous rapidity in the slowed-down current of food waste matter passing down the canal of the bowel. They not only produce poisons that pass into the blood and burden the organs of elimination, but they locally irritate and ultimately set up an inflammatory state in the lining of the bowel, called by physicians "colitis." And now the poor patient is in a really bad way.

But a book could be written upon the degrading and degenerating body effects that result from the refining away of the fibrous waste from our chief foodstuffs.

Enough has been said to prove that the important function of the intestinal muscles is seriously handicapped by making our foods unnaturally dainty and "refined."

Suppose the bowel trouble stopped with the muscle degeneration that is so sure to occur. There would still be added the depression of every other body function through the interrelations of the reflex nervous system by which all organs and functions act and interact upon each other. And we already know that such interference is an interference with the tendency of the body to live.

There is no getting round that fact. And, since it is a fact of such serious moment to all civilized persons, I think it should be broadcasted everywhere. Only a fool will eat extensively of refined foods when the consequences are made known to him.

Now consider the extensive, almost universal, use of refined foods among the civilized races, referred to in the preceding chapters. Recall that constipation is almost as universal among civilized people as is the use of refined foods. Add the self-poisoning that results from constipation to the other body-degenerating effects already considered; then add the lessening of every body function in "sympathy" with the lowered bowel function; then bring to mind that savages who live upon natural, waste-rich foods are not constipated, neither are they diseased; then continue to consider whether it is possible there is any connection between the foods and feeding habits of the civilized peoples and civilized peoples' omnipresent diseases. But do not yet make up your mind.

PART TWO

PROLOGUE TO PART II.

(Reprint of an Editorial by the Author in Archives of Therapeutics, New York, November, 1926)

WHY BE SICK?

OR MAN'S NATURAL IMMUNITY FROM DISEASE

Aristotle, "the teacher of the ages," said:—"That man who observes and thinks for himself is wise, but he who sits long with the observations and the thoughts of others, scorning not the opinions of the obscure, yet observes and thinks none the less for himself, is the teacher of the ages."

Most men who have left their impress to any great extent upon the world have had this same respect for "the opinions of the obscure." They have likewise had none too great a respect for the opinions of the authorities. Had they been authority worshippers, they must have been thought-bound and they never could have been heard of.

And we medical men, or many of us, are so largely authority worshippers, such conventional thinkers, that we find it all but impossible to see that there is any other path than the conventional one.

I can almost hear the protests that are bound to arise in the medical minds scanning these remarks against the charge, and they present the ready acceptance of the Pasteurian theory of bacterial causation of disease as one proof that I am wrong. They present this, although that response was not so unanimous nor so ready as we are now inclined to suppose. Moreover, if it could be proved to have been instantaneously accepted, it would not prove the non-conventionality of the medical mind.

In fact, to prove that the medical mind gave ready ear to the Pasteurian theory is to prove too much. This is for the reason that the medical mass mind has always viewed disease as something we catch. And yet there never was any real comprehensive understanding as to what it was that we caught—that is, what was the *modus operandi* of the taking on of disease. The one thing we have been always sure of since the days when to be diseased was to be possessed by a devil was that we caught it, or that it caught us. And when Pasteur came along and showed the association of bacteria with disease processes, how natural to accept his claim that bacteria were the cause of disease. We caught the germ and we got the disease. You see this idea fitted easily into our conventional thought and age-old belief that disease is due to an external cause.

I am not denying that bacteria have a part to play in disease manifestation, but I am quite sure that bacteria are rarely, if ever, the primary cause of disease. If they were we would surely always be diseased, since we are all continually in contact with these "causes of disease." Manifestly, if bacteria are *the* cause of disease, and we are constantly in contact with these *causes*, yet are so rarely, as individuals, diseased, there must be generally present something stronger to prevent than these *causes* are to cause disease. And that thing cannot be external to the body. It must be a bodily condition or state. And it is a bodily state. Its name is vital resistance.

Now nothing can be more evident than that if vital resistance can prevent the onset of disease, then it is the absence of vital resistance that is the *primary* cause of disease, and not bacteria at all. Let these micro-organisms play what part they otherwise may, the certainty is that they are not *the* cause of disease.

Then if devitalization, lowered vital resistance, is the *primary* cause of disease, which condition must of a certainty be present before bacteria can have any part in disease manifestation, to what does this point as the true vocation of the physician? Well, yes, to repair broken bodies, but surely that is not the highest ideal set before us. The highest ideal we can have is the acquisition of the knowledge how human bodies may be made so vital that they will *always resist* the onset of disease, then to put that knowledge into effect in our own bodies as a proof to the masses outside our ranks that by making use of our knowledge they, too, may be free from disease and premature death.

Now, it goes without saying that this vital resistance is not developed in bodies by medical or any other human artifice.

The babe is born into life with it or it would die almost immediately from contact with "disease-producing micro-organisms." Moreover, persons who eventually have to call one of us in to aid them in getting well have usually lived through many years in daily contact with these micro-organisms before they became diseased. During those years they must have possessed that vital resistance that made all germ contacts as harmless to them as a sunbath on a sunlit day in June. Yet, never a thought did they give in all those years to building or maintaining their vital resistance to disease. Without exception their habits had been devitalizing. But in spite of that drain upon their powers of resistance they had still sufficient vitality to resist the onset, although not the insidious encroachment, of disease. Nature and not themselves had attended to that, as she does in the case of the new-born babe.

The insidious encroachment of disease. A fit subject for a deal of thought. We have not time to spend upon it here other than to say that disease is always the result of an insidious encroachment upon the vital resistance. The onset may be sudden; but long before the actual explosion occurred the train was being laid. It was only some final strain that lit the fuse. It may have been only a too hearty meal or an indigestible one or an emotional strain or an excessive or long-sustained physical effort. Always it was something that the fully vitalized body could have stepped from under with ease and unscathed.

In the preceding paragraph I stated that nature had attended to supplying the vitality that had enabled them to resist the disease onset.

I wonder whether there is any physician who can imagine that there is any other source of vitality or vital resistance that our so-indulgent old mother—Nature! Perhaps it would be unfair to ask that question, since there may yet be many who are not ready to admit that vital resistance plays a part in the prevention of disease. I shall, therefore, leave the thought expressed as a simple wonder.

To such I will only propound the query: why is it that if there is an artifice that will either cure or prevent disease in some men it will not always prevent or cure disease in all men? The answer is, of course, that in those whom the cure would not cure the vital resistance had run too low. And there you are. If the vital resistance had run too low what was the relation of the human artifice to the cure if it could not replace the vital resistance? What, also, was the relation of the artifice to the cure in those who had sufficient vital resistance to get well? What was its cellular effect—its *modus operandi?* There's a lot more to think about in that than most physicians have taken the trouble to think. Hands up all who have taken the trouble to think this out. Umph! Just as I thought.

But it's those very men who have not thought this thing through and through who are intolerant concerning the unconventional procedure or thought. They are the "For God's sake, old man, cut out the Physical Culture bunk" type, like my Philadelphia friend, referred to a couple of issues back. They are not the Sydenhams, the Franklins, the Faradays, the Napoleons, the Aristotles or their ilk, to whom new ideas, often scintillating with jeweled truth, are presented in the problems raised by the untaught, though not unlearned, "common man."

But I have a recipe for the re-creation of vital resistance that will withstand the most critical analysis. I can express it in two words, *follow nature.* Better in five words, *keep out of nature's way.*

Now there is an idea as well as a recipe. Keep out of nature's way. Think what that means. Consider all that it implies. Outside the realm of the spiritual it is the highest ideal within the reach of the human mind. It might be —it ought to be—the motto of our profession. There is not another profession so concerned with nature and her way. We admit, as physicians, in our moments of candor, that when a cure is made it is nature that cures. Yet, how little we study nature or nature's ways. How prone we are to resort to artifice in our treatments! How little we consider the laws of nature, the living in obedience to which would mean to US, to our own selves, a total freedom from disease! How little of nature's ways we learn by observance of the lower animals! These creatures are subject to the same laws of life and death as men are. They can become diseased, and they do when their living conditions are imposed by men. But when they do become sick, if left to their own devices, they simply refuse all food and become absolutely passive to the inflow of the cosmic forces and, if not interfered with, almost invariably get well, *via* the route of nature.

Of course, we know it is the coddled and too-well-cared-for domestic animals that become sick, and the more they are coddled the more often they become sick.

Now, is there not in this some hint to us? If we were to seriously adopt the motto, "keep out of nature's way," there surely would be. For the first lesson we would have to learn is that the way of nature is, never coddle. The life conditions of nature are rather hard. We may wish they were not, but they are. It is the way of nature. And when we make the conditions of life easier than nature's way, what are we doing? Getting in the way of nature by trying to break her laws. Sophistry may say something else, but still the ways of nature are the laws of nature. And when we go contrary to nature's ways we are attempting to oppose her laws, and surely we are wise enough to know that that means disaster.

Nature, I said, does not coddle. But we coddle ourselves when we live in heated houses and go about "well clothed" so that we cut off all bodily contact with our natural physical environment; when we take nice warm baths in a steamy, stuffy room; when we sleep in a warmed room with little or no ventilation; when we ride about in a street car or other mechanical conveyance; when we climb stairs in an elevator or escalator; fill our stomachs with all sorts of artificially modified foods made so dainty that they demand little or no chewing. And if this is to coddle ourselves, and nature's way is not to coddle, are we following in nature's way or getting in nature's way in our personal living habits?

My contention is that when we coddle ourselves as above outlined we are getting in the way of nature and then nature clouts us or kicks us aside, and disease or sickness is the sign that we have been kicked by nature to get us out of her way.

I know from personal experience how sick the coddled body can become. I also know from personal experience, extending over twenty-two years, how well the sick body can become when it ceases to coddle itself, and I also know how constantly the uncoddled body which does not suffer from the other extreme—ignorant abuse—constantly thrills with the very exuberance of healthful life. I know from scores of similar recoveries and cases of rejuvenescence among my patients.

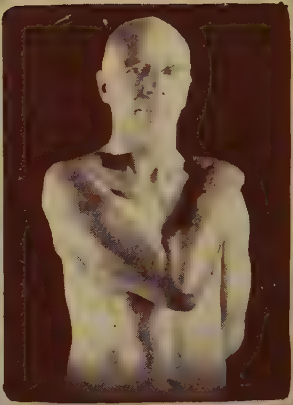
And, of course, the *modus operandi* of the recovery and the rejuvenescence is the gradual building up of the bodily resistance through the stimulation, by nature's means, of the *Defensive Reflexes* of the body. And what did I say was nature's method? Not to coddle the body. In other words, to expose the body to certain environmental strains and feed it upon—not "lots of good nourishing food" but upon—reasonable amounts of *natural foods.*

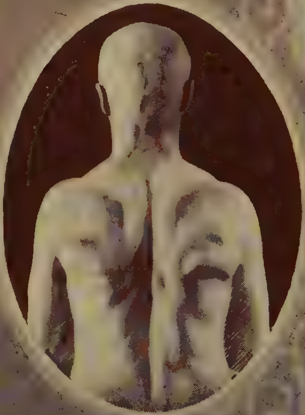
Natural foods. That is about all that some, or perhaps most, of my readers will think that I, as a dietitian, ought to write about. But I am a different kind of a dietitian. I have been at it long enough to know that the best dietary in the world is only a small part of dieting. It is because dietetics has been limited, as a rule, to the study of foods, and, too generally, to the study of how to make foods easily digested, that it has failed to win the place in our profession that it deserves. The dietitian ought, for the time being, at least, to direct the entire regimen of the patient. Then he will obtain striking results. But neither dietitian nor anyone else will be able to do this who has not interrogated nature with an open and unprejudiced mind. The best dietary in the world cannot, in the absence of the normal stimulation of the defensive reflexes by nature's means, so increase vitality or vital resistance that disease and the danger of becoming diseased may be practically ignored.

Does anyone believe that just eating the most scientifically perfect diet could develop the endurance, the vital resistance, that enabled the young Canadian girl recently to swim in Boston harbor for thirty-seven minutes with the water at freezing temperature for fresh water; or Hammouch Ben Hadge, the sixty-seven years old Riffian warrior to run on foot seventy miles between sunrise and sunset, as was accomplished by him in April, 1925; or the fifty-seven years old Chester Levere, who, in that same month, skated eleven and one-half miles, ran three miles and then skipped the rope five hundred times all in one day? Or, to come nearer home, could I at sixty-five have won a 1300 miles bicycle contest in nineteen days against a young man half my age, enduring the grind of seventy miles a day, carrying fifty pounds of camp equipment, food, etc., sleeping on the wet ground every night, in the cold, wet month of May, 1924, had I depended on diet alone? True, the contest was undertaken to determine whether I could or could not develop the tremendous physical resistance required in such an undertaking, living upon my simple dietary. The contest proved that I could, for I ran away from my youthful contestant who lived upon the conventional civilized dietary, "lots of good nourishing food." But neither I nor any of the others mentioned could develop the required endurance, the vital resistance to endure such a strain, without submitting the entire body to a systematized regimen of living that is the antithesis of coddling. No such endurance can be developed, except by developing the resistance of the cells of the body individually, organically and *en masse.* And this can only be done by systematically giving the body something to struggle against, something to overcome, resist, endure.

The natural way to do this is by stimulation of the defensive reflexes through nature's means, viz., the exposure of the nude body to environmental contacts, together with systematized physical exercises and the deep breathing associated therewith; thinking in terms of health rather than in terms of disease; cool or cold bathing; reasonable quantities of entirely natural foods, the bulk of which have been prepared only in the great solar oven of nature; as little clothing as can be endured, and that of open or loose texture; enough of work; enough of rest; enough of sleep; enough of play. All of these done in the moderation that approaches, but never oversteps, the physiological limit will enable the physician to, with certainty, develop that vital resistance which will make it possible for him to practically ensure himself against sickness and disease. By these means he could be as disease-free as are the savage races, and that is practically altogether free, until the savage contacts civilization and takes on civilization's habits. And the thrill of that consciousness of perfect, invincible health is the greatest known to flesh.

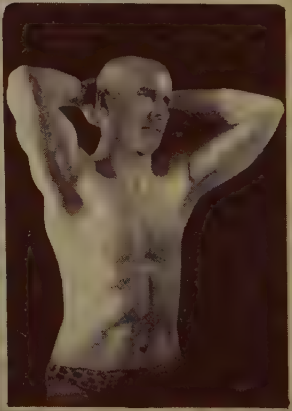
ONCE a "broomstick," but look at this muscular arm now — developed in a desk-worker after 55 — by proper food





ALTHOUGH this picture speaks for itself, note especially the phenomenal muscular development from base of skull to hips

NOTE the youthful sparkle of eyes with no pouching beneath, the neck development, the muscular symmetry of the whole upper body.



CHAPTER ELEVEN

THE MUSCLES AS A FACTOR IN HEALTH AND DISEASE.

In the chapter on "Basic Principles" I stated that only natural living habits can produce a normal or healthy human being.

In the closing chapter of Part One, I stated that the unnatural living habits of civilized people had not all been considered in that section. And if Part One were five times as lengthy, I could still make that statement with perfect truth. It is quite certain that one could truthfully say that practically every habit that distinguishes the civilized man from the savage is an unnatural one.

Moreover, it is unavoidable that civilized living habits shall be unnatural habits, so long as civilized people hold the belief now universally held by them, that comfort, ease, freedom from physical exertion, food repletion, food delicacy and daintiness; luxurious coddling, in short, are the cardinal objectives of life.

While it would be impractical, if not impossible, to discuss all the unnatural living habits of civilized peoples, there are a few glaring departures from natural living habits of which civilized people are guilty upon which I feel compelled to comment.

In "Basic Principles" I showed that every organ, cell or body part is designed for some special office or function and that only by performing that designed function can either the organ or its function become or remain normal; and only by each cell, organ or body part performing its function at its fullest functioning power can all the body organs, cells and parts be perfectly normal—that is, in perfect health—a body condition that confers a positive immunity to disease.

It thus becomes evident that it is vitally important that every organ under control of the reflex nervous system shall be given a chance to function normally by giving to it the opportunity that nature intended organs to have to be stimulated by natural means, and also that it is vitally important that those functions under control of the will shall be compelled to fully perform their intended functions.

Let one of these functions lapse or be interfered with and every body function sinks to a lower level of functional activity. That is, it does not do the work so perfectly: hence the body must suffer in its quality of vital resistance.

When we look at the body there are many most important organs having most vital functions to perform that we cannot see. These are all under control by the reflex nervous system and must contact natural stimuli if they are to function normally. But we do see other parts of the body that are under control of the will. Such are the voluntary muscles. We say these have no effect upon the organs and functions controlled by the reflex system, but this is not strictly correct since every function of the body has an effect upon all other functions of the body, affecting them for good or ill, as these functions are well or ill performed.

Let us, then, in this chapter, consider the muscles. Their function is to contract—to exercise force. In the exercise of this function they do more than move the body parts about. Indeed, that is the least important thing they do accomplish, for that could be done vicariously.

In the third and last part of this book I shall discuss various offices performed for the body by the muscles, sufficient to show how vitally the whole body is affected by the muscle function.

In this section it is only my intention to point out how this important body function is left unperformed in any effective way by perhaps ninety-five per cent. of civilized people, and some of the direct results thereof.

Consider the size of the human muscles. Did these muscles just happen to be so large, and capable of exerting so much power? Not likely, or, if they did, then some day they are just as likely to happen to become small and a race more or less incapable of locomotion appear in succession to the present large-muscled race. Or, just as likely are the muscles to become so large as to make an unagile and unwieldy race. Or there might possibly be both of these types, and many more types.

I think no one will contend, therefore, that the large and powerful, yet completely agile, human muscles are so by mere chance. But, if not, then they must be so by design, premeditated or evolved, it matters not which. Design implies a Designer—Designer implies intent. Intent implies function—function implies use, and use implies necessity—the necessity of using the organ as it was designed to be used. And there we are, back again at the starting point of the circle.

The very existence of our muscles implies use. This being true, it must be equally true that the very extensiveness of the muscles implies a very extensive use of them. Nature makes no mistakes. She does not supply us with organs capable of exerting great functional power without demanding of us a large exercise of that function. But nature makes no demands of us and yet fails to punish us when we refuse to comply with her demand. Let us get firm hold upon this truth. It is the curse of civilization that we do not take in this truth except in a more or less theoretical or academic way. We continually attempt to cheat nature and are so foolish as to imagine we are getting away with it. But the sudden death of friend after friend "in the best of health"—friends who "had never had a sick day," friends who had "never seemed better than the day (or night) before," friends who "looked the picture of health," on whom we would "have staked our last dollar that they would live for years"—ought to give us pause.

But I am digressing.

The very existence of large muscles implies the intent of a large expenditure of muscular force. That is not my implication; it is nature's. And nature's implications have back of them all the force of natural laws. Obey or pay is nature's dictum. To obey is to live simply, naturally. To live naturally is to be normal. To be normal is to have a perfect body. To have a perfect body is to be *free from* and not *subject to* disease.

Obey or pay! Have the sudden deaths of our friends in "perfect health" any significance to us in this connection? Only if we are very wise. To most of us they mean the interference of divine Providence with the natural course of a life. But the proper significance is that they indicate an interference of the individual life with the course of divine Providence.

Certain natural-living laws, simple-living laws, that anyone who wills may easily understand, are laid down for the guidance of the individual life in order that he may live out his full earth cycle by living in conformity with those simple laws. That is all there is to ensuring to ourselves a long life and a constantly thrilled and vital one. But the individual does not even choose to study what kind of a life nature has intended he should live, he only studies how he most likes it to be lived. This lack of consideration for the laws of nature or of God and concentration upon self exacts its price—sickness and, generally, early death—always a far earlier death than nature had intended, no matter how long the individual lives.

I have said that the curse of civilization is the universal belief that luxurious coddling and physical ease are the cardinal objectives of life. Because this is true men scorn physical or muscular exertion. But this is not all. The most serious result of coddling is that it has begotten the general belief that it is easy to overdo physically. The genesis of this belief is about as follows: A man around middle life habitually refrains from physical exercise—has done so for years. Some day he is forced to exert himself to the limit of his strength. Soon after he dies. Obvious conclusion—physical exercise killed him. But the conclusion is all wrong—entirely, utterly wrong. He had refused nature's command to obey and exercise his muscles so long that he was due to pay—and he paid.

We are too apt to generalize, using as the basis for our generalizations what we habitually observe, without dipping beneath the surface in making our observations. Because men sometimes die after exertion we say exertion kills them without taking thought why it is that exertion kills them. If exertion killed all men, or even killed most men, we would have some justification for saying that exertion kills men. But we know that, after all, it is the exception for men to die after exertion; therefore, when a death takes place after exertion, the proper inference ought to be that it was something antedating the exertion, that seemed to kill, that was the real killing influence.

What we ought to do is to consider the physiological factors entering into the case before we decide upon the cause of sudden death.

If we did this we would generally find these men possessed of large muscles potentially capable of exerting great force. We would also find that muscles which systematically exert great force are always capable of doing so, if their exercise of force remains within the physiological limit—below that point where exhaustion begins. Not only so but, since great physical exertion must develop resultant body poisons, the organs whose functions are to quickly rid the body of these poisons are, like the constantly trained muscles, capable, through constant training, of performing their eliminative function without strain.

And we would find something more, which the physiologically uninitiated will understand better by first thinking about rubber tires and garden hose.

The reader knows, of course, that the function of garden hose is to carry water, that of tires to carry air and transport weight.

He knows, too, that pliability, elasticity and resiliency are all very essential to these appliances if they are to stand up for any time. But he knows that the best way in the world—in fact, the only way—to ensure lasting pliability, elasticity and resiliency is to, more or less continuously, use the appliances. The more they are used and the greater the strain put upon them, short of overstraining them, the longer will their pliability, elasticity and resiliency endure. Put them away and do not use them and in a few months they are hardened beyond recovery.

All this is just as true of the human bloodvessels and heart.

The bloodvessels are elastic tubes composed of involuntary muscle fibres and elastic tissues, under the control of the reflex nervous system. Their function is to transport blood. This function is greatly aided by the elastic walls of the arteries.

When the heart chambers fill with blood and then contract, the blood is forced from the heart chambers into the arteries whose elastic walls stretch to accommodate the inflow of blood. Then while the heart chambers open to refill themselves the arteries are closed off from the heart by valves placed at the junction of the heart and arteries. But the circulation of the blood must not stop for even an instant, yet the pumping force of the heart is, for the time it is refilling, shut off from the column of blood in the arteries. The continuity of flow, however, is assured by the stretched arteries contracting back to their normal size, thus forcing the blood out of themselves and onward into the capillaries and veins, the veins carrying it back again *via* the lungs to the heart.

In the chapter on "Basic Principles" it was stated that the functioning power of all organs, cells and body parts is increased by use; the greater the use and the greater the power exerted up to, but never beyond, the point where exhaustion begins, the greater will be the functioning power of such organ, cell or body part.

It was also stated that nature tends to destroy the unused, under-used, interfered-with or impeded function, organ or body part.

Now let us apply our "Basic Principles" to the muscles, the heart and bloodvessels.

The functions of all of these are what scientists call "kinetic," that is, they impart or induce motion.

When the muscles are at rest they are in a state of mere tonicity, that condition or state that differentiates an unparalyzed from a paralyzed muscle. This is an entirely passive state. The muscles are not actively functioning. If this passive state be persisted in, then nature will intervene with her law and tend to destroy such inactive muscles, as evidenced by their growing flabby, becoming small and losing strength when unexercised, a condition known as the atrophy, or wasting, of disuse.

When the voluntary muscles are passive the heart is not called upon for more than passive effort. If this heart passivity is persisted in for long periods the heart becomes an organ capable only of passive effort; it has become subject to the atrophy of disuse.

When muscles and heart are both only passively functioning less blood is pumped into the arteries. Thus their elastic walls are less put upon the stretch; they are also only passively functioning. If long-continued passive functioning is permitted the artery walls lose their expansile and contractile power. As with the muscles and the heart, nature tends to destroy and eliminate them to the extent that they have been withdrawn from active as distinguished from passive function. The artery walls suffer from the atrophy of disuse.

Now almost everyone knows that voluntary muscles that have not been used for some time in an active way not only tend to become small and weak, but they tend to become rigid or stiff. This is just as true of the involuntary structures of our anatomy.

The heart and bloodvessels, especially the arteries, are largely muscle. When the skeletal or voluntary muscles are passive, because they are not made to work by the will, the heart and bloodvessel walls are similarly passive, as already pointed out. Passivity persisted in leads to atrophy; and this further persisted in leads to stiffness and rigidity. In the case of the artery walls they lose their power to expand under increased heart action, therefore it becomes more difficult for the contracting heart cavities to send the blood from its chambers into the arteries. The heart also loses some of its power to contract and expand, while the state of passivity is persisted in. But when the artery walls lose their elasticity the somewhat atrophied heart is called upon for greater exertion than normal to force the blood through them; greater exertion than normal called for with less than normal power to respond.

Here is presented a picture of the physical state of our friend who "looked the picture of health" just the day before. Here is a picture of him who suddenly died after some unusual exertion or emotional strain.

The atrophied (wasted) muscles were called upon for unaccustomed and sudden exertion. They responded; but, in so doing, they manufactured a much greater supply of body poisons than would normally be the case with normally-developed muscles, because for them it was a greater effort.

The organs whose function it is to eliminate these body poisons were also suffering from the atrophy of disuse. But they were under control of the reflex nervous system. They could not be lashed by the will to immediately respond, as could the voluntary muscles. The body poisons accumulated in the blood. This poison-loaded blood not only had to nourish and energize every other cell in the body, but it also had to nourish and energize, as best it might, the atrophied and somewhat rigid heart and bloodvessel walls. But at the exact time that these crippled organs (heart and bloodvessels), were supplied with this poisoned blood—this poisoned source of energy—still further disabling them, they were also called upon by the greater muscular effort of the voluntary muscles to supply more blood containing more energy to these now actively-functioning muscles—muscles that called for more than the normal amount of energizing elements because they were unused to active functioning and it required more energy to maintain their power to work.

The somewhat crippled, somewhat poisoned, heart tried to respond. It worked fast and furious. But the rigid arteries refused to expand to let more blood pass through, thus they increased enormously the demand upon the crippled heart. But the exercising muscles kept up their insistent call for more and more energy, while more and more the blood stream was poisoned by their exertion and the coincident failure of the poison-eliminating organs. The heart kept responding until . . . . .

Now tell me, was it physical work or the long-continued lack of it that killed the man?

CHAPTER TWELVE

MUSCULAR EXERCISE AND HEALTH OF INTERNAL ORGANS.

The previous chapter was purposely brought to a rather dramatic close with the intent of trying to bring home to readers the self-developed tragedies that civilized people curse themselves with through living habits peculiar to civilized peoples.

We cannot intelligently doubt for an instant that nature demands that our voluntary muscles be fully and frequently exercised—exercised up to their full functional capacity. This is proved by the fact that she tends to destroy them or take them away from us when we do not exercise them, and to the identical extent that we refuse to exercise them. It is also proved by the fact that they increase in size and functioning power—strength—in proportion as they are exercised up to their full functioning power, but never beyond the point where exhaustion begins. The relative smallness, flabbiness and weakness of the unexercised muscle as compared with the well-exercised muscle sufficiently proves this contention. This is as it must be by reason of the physiological law that "All functions, organs or body parts increase in functioning power the more they function (work) up to but never beyond that point where exhaustion begins"; and also by reason of the other law that "All under-used, unused, impeded or interfered-with organs, functions or body parts tend to be destroyed."

I have shown in other chapters how other organs, particularly the circulatory organs, must also degenerate when the voluntary muscles fail to do their intended work. But this is as true of every organ or part under control of the reflex nervous mechanism as it is of the heart and blood vessels.

Every person with any reasonable acuteness of observation must be aware of the improvement in digestive function when the body's voluntary muscles are vigorously and systematically exercised out-of-doors. If digestive function is invigorated by muscular exercise, then the converse must also be true: digestive function degenerates in the absence of muscular exercise. And this is what we ought to expect, for the body, when under-exercised, does not require the same quantity of food; therefore there is not the same call for digestion. Nature, being a great conserver of forces, tends not to exert any more than the power necessary to digest the food she needs with which to carry on body functions. Thus digestive power is lessened by lessened exercise of digestive function, in response to the law laid down in "Basic Principles" and already quoted in this chapter.

Please bear in mind that this is not merely speculation or theory. Everyone must be familiar with the fact that, other things being equal, the manual worker out-of-doors has far greater digestive power than the sedentary worker. It could not be otherwise; because the hard, muscular work calls out more body energy, and body energy can only come through or from digested food—perfectly digested food.

The tragedy, rather one of the tragedies, of civilization is that indoor, sedentary workers often eat as much food and of the same kind as the outdoors muscular worker. It is, in the vast majority of cases, impossible that all of the food eaten under such circumstances can be equally well digested. And, when it is not, it must more or less poison the eater of it. Therefore, the blood of a person over-eating and under-exercising must be chemically more or less toxic, and physiologically it cannot be natural, and unnatural blood cannot build natural, that is to say healthy, bodies.

But I have only instanced the digestive function because it is more familiar to the lay reader. There is no function in the human body that is not similarly interfered with when the voluntary muscles of the body are not fully exercised, and with regularity, in the out-of-doors. This would be true if for no other reason than the resultant lowering of the digestive power; but there are other reasons, physiological ones, too.

And, in civilized countries to-day, is it not true that people tend to become more and more indoor, sedentary workers? Is it not also true that in those occupations which formerly compelled great muscular exertion, machinery has taken and is taking an ever-increasing amount of muscular work out of the hands of civilized mankind?

Is it not also true that civilized mankind tend ever more and more to ride than to walk? The universality of the automobile, the elevator, the motor bus, the street car and railway, what else do they imply than that the vast majority of civilized people no longer walk?

Is it not true that in large industrial establishments men and women tend more and more to stand more or less at attention watching over a mechanism doing the real work?

Even the farmer, does he not ride a machine to-day when formerly he walked?

It must be admitted that all this is true and that we count it good. We speak of it all as "the advances of civilization." And, properly controlled, it all might be.

But all of these men and women who now do so little muscular work continue to eat as much and often *more*—because of greater variety—than men and women ate when they were compelled to work their muscles more or less constantly. And they eat more and more of unnatural foods, foods changed in their nature by the artifices of men; and unnatural foods, we know, cannot build or maintain normal human bodies.

However, we have pretty well covered the unnatural food habits of civilization. Add to these unnatural food habits the lack of natural, muscular exercise among the so-called advanced races—or the unnatural absence of muscular exercise—and all that it entails of disturbed functions in, and the consequent degenerated structure of, other organs and continue to consider whether it may be the living habits of civilized peoples that cause the so-prevalent diseases of civilized peoples. But do not yet make up your minds.

CHAPTER THIRTEEN

THE VAST IMPORTANCE OF THE SKIN.

In chapter eleven it was shown how vitally important it is, for the prevention of early, and often sudden, death that the voluntary muscles of the body be regularly and vigorously exercised.

In that chapter I also reiterated the statement made in "Basic Principles" expressing the necessity of each and every function of each and every organ or body part functioning normally if the body is to be constantly immune from disease.

I also stated, "it thus becomes evident that it is most important that every organ under control of the reflex nervous system shall be given a chance to function normally by giving to every such organ the opportunity that nature intended to be naturally stimulated."

What do I mean by "opportunity to be naturally stimulated"?

In "Basic Principles" I showed it was the intent of nature that man should live in the open unclothed, his nude body contacting the wind, sun's rays, rain, fog, dew, heat, cold, the earth itself. If nature had designed us to live in houses, she would have brought us into life with these things provided for us. For we may take it as fact that nature leaves no important provision unattended to—leaves no important provision to the vicissitudes of chance.

While nature did not provide us with houses and clothes and, therefore, must have intended us to live without them, as we—the human family—did for untold thousands of years, she did not leave us defenceless against the changing physical environment.

We are accustomed to conceive of the skin as a sort of protective covering for the raw flesh, with the added function of keeping the blood from getting out of the body. But that is again only because we do not look beneath the surface of things.

When we consider the human skin we find it is a most complicated and important organ. "Organ," please note! Had you ever supposed the skin could be an organ, and a most important organ, too? Not likely. Yet, when we study it, even a little, we shall see that such it is; and, because she gave us the skin, nature did not leave us unclothed and unhoused yet unprotected against the suddenly changing environment.

Nature endowed us with a Defensive Mechanism against the physical environment, located chiefly in the skin and its appendages, infinitely more perfect than anything we can devise in the way of clothes.

Then let us study it.

First of all, the skin is a covering. More than that, it is an insulating covering, as we shall see.

The body develops its own internal heat. The normal skin keeps this heat in during cold weather and throws it off in hot weather. It also prevents the external atmospheric cold from gaining entrance to the deeper parts of the body. But for the skin, the body would freeze up in winter and explode or burn up in summer weather.

The skin also breathes. It is an accessory lung, so to speak, taking in vitalizing oxygen and throwing out poisonous carbon dioxide. But, in addition, the skin throws off other gaseous poisons and poisonous matters in solution in the sweat.

The skin also contains sebaceous glands secreting an oily substance which they spread over the surface of the skin to keep it soft and pliable and prevent it chafing and cracking.

The mere superficial beauty of the body, as represented by the face, is largely controlled by the condition of the skin function of the entire body.

The skin is thus seen to be one of the greatest organs in the body and of tremendous importance. So vitally important that, if you shut off all skin activity, the body soon must die.

This is not at all fanciful or theoretical. During the inauguration ceremonies of one of the popes in Rome a beautiful and healthy child was covered with gilding to represent an angel. Within a very short while the child was dead.

Now, what shall we say?—is not the skin a vitally important organ? Is such an organ not worthy of considerable study, thought and respect? Most assuredly. Then let us study it; let us think about it; let us respect it. But we must not study it too intimately, lest it mystify us with the minutiae of its structure and functions.

Anatomically, the skin consists of a vast multitude of cells piled on top of each other and divided roughly into several layers, each layer with its own peculiar label, useless to us here. The outer few layers of cells are made of a horny substance and contain no bloodvessels. These layers together form the epidermis or cuticle and are more especially the layers that protect the surface from easy erosion by friction and prevent the escape of the blood. The deeper layers are crowded with small capillary bloodvessels which play a very important part in regulating the temperature of the body and keeping it always at a constant point, about 98.6 degrees F. regardless of the external heat or cold. These bloodvessels are very closely associated with the sympathetic or reflex nervous system and are entirely controlled by these nerves.

Organs under control of the reflex nervous system cannot be affected by the intelligence or will; they operate only in response to stimuli reaching them from some source outside of themselves. It may be the secretion from some other organ or gland in the body or it may be some physical contact, as heat or cold. But always these reflexly-controlled organs function normally only when they are urged to function by contacting their natural stimuli.

Take the bloodvessels so plentifully disposed in the deep layers of the skin and the tissues just beneath the skin that the finest pin-prick anywhere will draw blood, and get the idea fixed before the imagination that these are a network of little tubes with elastic walls controlled by a set of nerve fibres from the reflex nervous system with sensitive contact terminals located in or on the skin surface. Picture these little tubes expanding their elastic walls to increase their capacity when the sensitive terminals on the skin surface contact external heat above a certain degree and contracting them when these same terminals contact external cold. Imagine it is a hot day. The heated atmosphere contacting the nerve terminals in the skin causes the tubes, or blood capillaries as I shall now call them, to expand to double their size. These capillaries become engorged with hot blood from the interior of the body and this heat is soon radiated into space and keeps on radiating so long as the external heat keeps drawing the blood to the skin capillaries.

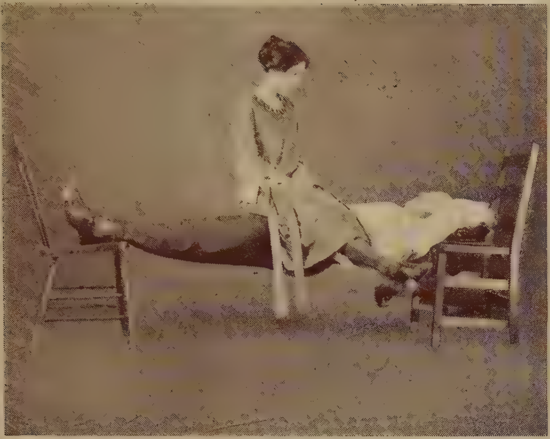
But that is not all that happens. At right angles to the skin surface there are two sets of little gland structures scattered everywhere throughout the skin, the oil glands and the sweat glands. At their deeper ends they are, roughly speaking, closed sacs. A network of capillary bloodvessels surrounds these closed sacs, especially those of the sweat glands. When the surrounding temperature rises so as to threaten to increase the body's temperature above the normal 98.6 F., these capillaries dilate, become engorged with hot blood from the body's interior and the secreting cells lining the inside of the sweat glands extract large quantities of hot fluid in the form of sweat from the contents of these engorged blood capillaries. This sweat then spreads in a thin film over the skin surface which quickly radiates its contained heat into space. As the external heat rises this heat radiation and heat extraction increase and as the external heat subsides the radiation and extraction cease. And this regulation of the body's heat is carried on, independent of the will or the intelligence, by the reflex nervous mechanism through its sensitive terminals located in or on the skin.

Of course, sweating can be induced by other means than by contacting environmental heat, as by muscular exercise increasing the internal heat, but ninety per cent. of the heat elimination of the body is carried on by the skin.

Then there is the pigment-forming mechanism, a provision of nature by which a layer of dark pigment is formed in the deep layers of the skin, when the nude body is long exposed to the rays of the sun, the object of which is to prevent the irritating and injurious rays from the sun passing into the deeper parts of the body.

Especially important is the way in which the skin protects the body heat from escaping into the environment when the atmospheric cold threatens to reduce the body's temperature below normal.

All over the surface of the body, whether visible or not, there are small hairs. At the roots of these hairs, or, more properly speaking, at the bases of the hair bulbs, there are sets of little muscles called the "arrectores pilorum muscles." These are attached at one end to the hair bulbs and at the other end to the under side of the skin. When the skin contacts cold in the environment sufficient to threaten the reduction of the body's internal heat, these little muscles instantly contract, causing the hairs to stand on one end, producing the phenomenon of gooseflesh, thus giving to the muscles their name. But the object of their contraction is not to cause the hairs to stand on end. When these muscles contract they condense the loosely-held-together cells composing the skin, close up the spaces between the cells, so to speak, and crowd the layers closer together on top of each other. In doing so they insulate the body against ingress to it of the external cold and at the same time against the escape, by radiation from the surface, of the body's contained heat. But, at the same time as the above is happening, the glands are stimulated to contract their ducts or openings on the skin surface and the cells lining their interiors get a command to stop secreting. They immediately obey and the escape of heat by insensible perspiration, which almost constantly goes on all over the body, is cut off. But this is not all. Coincidentally with the above happenings, the blood capillaries in the skin and just below it get a command to contract and rush their contained blood to the body's hot interior, shown by the skin slightly blanching on the first contact with severe external cold. But something else has happened. Cold to the skin acts as a powerful stimulus to the respiratory centre and while the above phenomena were being enacted the body simul-



IN all pictures observe the muscular neck, waist, back and legs, without which this feat is impossible. A real trial of even strength over entire body If you doubt, try it, holding up 115 pounds, absolutely tremorless while being photographed, after being posed and focussed. Only the most perfectly developed muscles and nerves can do it, and without perfect food these cannot be developed at any age, especially in advanced life.

taneously began to take deep breaths, and with each inspiration to take large quantities of oxygen into the blood. This oxygen acts as a stimulant to the heart which quickens its beat and intensifies it and this sends the blood scurrying back to the surface charged with heat. At the same time the capillaries in the skin have received orders to dilate to accommodate this resurge of hot blood and they immediately obey, as shown by the flush in the skin when it is a little while exposed to contact with cold. But the skin cells have condensed and closed their spaces and this hot blood crowded into the surface capillaries cannot radiate its heat into space. It is insulated from escaping by the contraction of the arrectores pilorum muscles condensing the skin layers and cells, and thus it is held at the body's surface to prevent access to the body's deeper parts of the external cold. But, still, that is not all. When the contact of the skin with cold caused the body to take in deeper breaths and thus to take in more oxygen it at the same time set that oxygen to work burning up the carbohydrate foods still unconsumed from the most recent meal, or if there were none present, then consuming the body's own fat, to liberate more body heat; besides it was set to work burning up the cellular debris or body waste and eliminating it as gas and water, and in other ways; but all of this burning produced internal heat which the condensing of the skin helped to largely preserve for the resistance by the body to the external cold.

Thus the same Defensive Mechanism serves the twofold purpose of preventing the body burning up or blowing up in summer and freezing up in winter, all depending upon the kind of natural stimuli which contact the sensitive terminals of the reflex nervous system located in or on the skin surface.

But this is not all that results to the body from contact of the skin with the environment. I have mentioned increased oxidation and the increased body heat resulting therefrom, as also the cleansing of the body tissues. But when the blood becomes charged with oxygen from the deep breathing that follows contact of the skin with cold, the heart is called upon to beat with increased frequency and force. This pumps the oxygen-rich blood to all the organs and glands. Since the organs are built up out of materials brought to them by the blood, this gives them the chance to build themselves the more perfectly by taking in new building matter and returning to the blood old, worn-out matter. Such organs as are also glands have the additional advantage of increased supplies of raw material for the elaboration of such secretions as it is their especial work in the body to supply. And the work of glands, generally, is to supply a substance to the body that is the stimulant without which some other gland or organ will not and cannot function; or it is the extraction from the circulating blood of poisonous substances and casting them out of the body; the first process being known as secretion, the second as excretion.

It thus becomes evident that there is a whole chain of reflex activities that takes place in the body as a result of the reflex nerve terminals in the skin contacting cold, and these functions I call the "skin reflex" chain. These functions cannot be effectively stimulated unless the skin does contact its natural stimuli existing in the environment, as wind, sun's rays, heat, cold, rain, fog, dew, the earth itself, all of which contacts the skin was designed by nature to make and thus, by always having to defend the body against such environmental stresses as obtain in these changing contacts, always be able and ready to so defend the body against such environmental strains.

A considerable book might be written upon the subject of the human skin and its appendages and their functioning importance in the human body. My purpose is not such, but simply to show by a few illustrations what a vitally important organ the skin is in relation to the well-being of the human body.

Of course, I mean the normal or healthy human skin. But now comes the rub! How many men and women in civilization have normal, healthy skins? How many can have healthy skins? Not many. Perhaps I should say not any.

Please bear in mind that I do not mean by unhealthy skins those which carry some more or less distinct markings of gross ill-health, as pimples or rashes or sores of some kind. Such are, of course, gross evidences of not only an unhealthy skin, but also of an unhealthy body. The skin cannot be pimpled or otherwise irritated if the body is entirely well. The really normal skin is one that not only can endure direct contact with the external cold—cold air, cold wind, cold water—but one that actually thrills with a joy in such natural contacts.

Such a statement must, I know, be an actually stunning one to about ninety-nine per cent. of my readers; but that is, once more, because it is the habit not to look beneath the surface. In the following chapter, let us look beneath the surface of this question.

CHAPTER FOURTEEN

THE SKIN AND ITS NATURAL ENVIRONMENTAL STIMULI.

Let me remind the reader once again that organs and functions become constantly more capable of performing their intended work the harder the work they do in response to natural stimuli, provided they do not go beyond that point where exhaustion begins. Everyone knows how the arm and leg muscles grow in size and strength the harder they are made to work, up to a certain point. And this is only an expression of the universal law. It is equally true of every other organ or body part. But the converse is also true. The muscles that are not exercised or made to work shrink, become flabby and soft, lose strength—evidence that nature tends to destroy such under-used or unused parts. Since it is a universal and inviolable law, it is equally true that every other organ or part loses functioning power when it does not fully function or work, and in proportion to its failure to fully function.

Now the skin, we have just seen, is an organ of many functions. But we shall consider only one of these, since the same principle applies to all. That one is what I call the "environmental defensive function."

Naturally, if nature intended man to live in the open unclothed, she must have endowed him with some provision for withstanding the sudden and often extreme changes in that environment. Without some such adaptation or mechanism a few degrees change in the temperature of the environment up or down and man would surely die.

This Defensive Mechanism has already been sketchily described in the previous chapter: the arrectores pilorum muscles, the two sets of skin glands, the network of capillaries surrounding their sacs, the similar network of capillaries ramifying in the deeper layers of skin cells and the loose connective tissues just beneath the skin, the pigment-forming contrivance and, finally, the sensitive terminals of the reflex nervous system located in or on the skin surface; the latter controlling all of the other named structures, and their ramifications throughout the body co-ordinating every body part and correlating them all with the sensitive terminals of the Defensive Reflex Mechanism connected with the skin. Such is the elaborate mechanism which nature has provided man with for his protection against environmental stress or strain resulting from sudden and severe changes in that environment.

Please keep this in mind as an actual, physical mechanism that does actually exist. And remember that every body mechanism has a function—a work to do. And the work that nature gives an organ to do is never an unimportant work. Remember that that organ, like every other, can only continue to function normally when it is allowed to contact its normal or natural stimuli; that it increases in functional or working power or ability the more it functions or works and loses its working power when it does not perform its intended function, or when it is interfered with in performing that intended function. This law applies to all functions, organs or body parts; therefore it must apply to that portion of the Defensive Reflex Mechanism located in the skin; for there is a lot more to the Defensive Mechanism than we are now considering, as we shall see.

Please go back over the preceding paragraphs of this chapter and get the points made in them fixed in the mind before proceeding. Try to realize that we are dealing with actual facts, actual natural laws, that cannot vary, and with an actual physical mechanism.

Now, then, we are ready to proceed. The natural stimuli by contact with which this skin's Defensive Mechanism was designed by nature to be stimulated to operate or perform its function are the wind, the sun's rays, rain, fog, dew, heat, cold, the earth itself. Remember that anything that interferes with these natural stimuli contacting the sensitive reflex nerve terminals of that mechanism must continually weaken that defensive function.

Now consider the habit of civilized people of swaddling the skin with layer upon layer of more or less impervious clothing and taking a more or less occasional warm or actually hot bath in a steamy, stuffy, hot and almost breathless bathroom—or of taking no bath. Recall the absolute dread of most people—possibly or probably including the reader himself or herself—of allowing cold, crisp air to contact the skin, and more especially if it is moving air or wind. Do such habits tend to strengthen the body's defensive function? Or do they weaken it? The question answers itself.

How under the heavens could the environmental Defensive Mechanism of the body help growing weaker and weaker when every possible obstacle is placed between it and the natural stimuli in contact with which it was designed to function?

It goes without saying that a body covered by such a weakened skin will not thrill when contacting cold water. Such a body dreads cold water. Such a body dreads cold contacts of all kinds, proof positive that its defensive covering is devitalized, that nature is imposing the penalty of the broken law and tending to destroy the unused, the under-used, the impeded and interfered-with body part.

And remember it is not only the skin's defensive function against the environmental cold that is being destroyed. A like defense against cold is being destroyed in every cell of the body. There is a whole, long chain of functions connected with the skin, of which the skin is the Primary Reflex Generating Centre, and when the primary reflex is wanting, because of absence of contact with its natural stimuli, then the entire chain of functions must fail also. These reflex functions operating in chain with the skin are controlled through the interrelations of the reflex nervous system. Small wonder, then, that exposure to a draft causes colds or 'flu or pneumonia or kidney congestions and kindred unnatural, and therefore unnecessary, processes in the delicately-balanced internal organs of such a defenceless body.

Yet there are many, many civilized people, including unthinking physicians, who believe it is the height of sanity to go "well-clothed" in the sense of being heavily-clothed, and thus "well-protected from the elements." Such persons, be they lay or professional men, have never looked beneath the surface. If they had, and still believed as they do, they would have no explanation for the fact that our hands and faces do not suffer at all from an exposure to cold that would bring the most acute shock if applied to the parts of the body usually shielded by layer upon layer of clothing from all direct contact with the elements. Neither would they have any explanation for the fact, so well known, especially to physicians who do a large slum or tenement practice in the large industrial cities, that colds, bronchial diseases, 'flu, pneumonia, etc., are comparatively rare diseases among the half-clad urchins of this great "unwashed," submerged class of unfortunates. I have had a considerable experience among these classes, and I know.

Bear in mind it is not my contention that these diseases are actually rare in such surroundings; but, compared with their prevalence among the "well-to-do," "well-clothed" and "well-housed" denizens of the same cities, they are rare. When such diseases prevail anywhere in such numbers as to excite no wonder in the observer and to be accepted as a natural condition for which there is no human blame, they surely cannot be said to be rare. And such is the situation everywhere in civilization.

Yet, it is certainly not so in the less "well-clothed" and less "well-fed" and less "well-housed" uncivilized lands, a point which it is important to remember.

Those who believe it is important to go about "well-clothed," meaning heavily-clothed, would have no explanation for the phenomenon of the Pacific Coast Indians who, years ago, I used to see paddling about in soft, sloppy snow in bare feet and with only a cotton shirt and a pair of dilapidated trousers or even overalls as their body covering, yet never manifesting any symptoms of feeling cold nor ever suffering from colds.

But the Indian had an explanation. One old lad, asked how it was he could stand the cold and did not even seem to feel it, replied: "Me all face." And there's the explanation in a nutshell.

It also explains why it was that a band of Filipinos, who toured the United States after they had completed an exhibition contract at the great World's Fair at St. Louis in 1904, were able to walk smilingly down the snow-covered streets of Philadelphia with no clothing but a breech-cloth, the sloppy snow squeezing up between their widely-spaced toes, the soft snow lighting upon their nude skins and melting there, the men apparently all unconscious of the cold.

I saw these men afterwards in the amphitheatre where I assisted in demonstrating from their feet, to a class of orthopedic students, what a perfect foot ought to be, and I had a talk with several of them. They told me they had never seen snow in their own country, yet they also told me they did not feel the cold; and I could well believe it, for their skins felt warm to my hands. I made it my business to learn whether any colds resulted from this exposure, but they laughed at the idea that they could catch cold; and they did not.

It all comes back to what I said in a former chapter. Civilized man has lost his health bearings and has falsely conceived the idea that it is physical ease and comfort and not physical fitness that is the main objective of life. One could not take issue with the statement that such is the objective of civilization, but it is not the objective of life.

There are the two main types of living habits: the one that aims at comfort, the other that aims at physical fitness, vitality, virility. The basic idea in the former is represented in the snake that has just swallowed a toad and coiled itself up in the sun to digest it while it sleeps. The basic idea in the latter is represented in the hound that strains at the leash, the racehorse that champs at the bit and cannot hold its four feet on the ground. The idea of the first type is to eliminate all physical exposure, all physical effort, to physically enjoy in a slumbrous, torpid sort of way. The idea of the second type is to utilize all physical means, physical effort, physical contacts and exposures that call out the defensive powers inherent in the body, thus increasing the body's natural defensive powers by exercising them, as one would with the muscles or memory that he desired to strengthen; the end aimed at being physical fitness from which physical vitality and resistance spring.

The devotees of physical fitness know that it is only by overcoming that the body can learn to overcome; only by resisting that the body can learn to resist; only by putting forth strength that the body can learn to be strong. They know, whether they ever heard of physiological or natural laws or not, that functions can only become and remain capable of full functional power by persistently and powerfully functioning, doing their intended work.

Everyone, even the devotee of luxury and ease and comfort, knows that if it is desired to build a strong set of voluntary muscles it is necessary to make these muscles function hard and regularly, but he does not see in this fact the embodiment of a universal principle or natural law that applies to *all* organs and *all* functions. Nor can the devotees of comfort and ease be expected to see this principle. We all find, to a great extent, only that for which we are seeking; and the devotee of ease is seeking only for excuses and for ways and means to coddle himself. Only the seeker after physical fitness can be expected to see the natural laws which operate to produce physical fitness, because it is physical fitness for which he is seeking.

But there are, in civilization, few devotees of physical fitness. The hosts of civilization are devotees of comfort and coddling. They have come to believe it is more advantageous to substitute the natural defensive forces of the human body with the vicarious devices of men and, through these, to protect the body vicariously rather than use its natural defences sufficiently that little artificial protection will be needed.

It is for the reader now to decide whether this coddling habit of civilization, by which the environmental Defensive Mechanism of the body is broken down, more or less destroyed, through nature's law which tends to destroy the unused function or part; added to the devitalizing effects resulting from eating too much food, incompatible foods, excessive quantities of "excess acid" foods, preserved, superprocessed and desiccated foods; added to the devitalizing influences arising from insufficient muscular exercise, added to the devitalizing effects of constipation and indigestion, might reasonably account for the diseases so omnipresent among civilized peoples, diseases that the savage peoples who follow more strenuous living habits and feed upon the unchanged foods of nature do not ever have.

But the reader is urged not even yet to make up his mind.

CHAPTER FIFTEEN

THE DRUG BEVERAGES OF CIVILIZATION.

If it is true that only natural living habits can build natural, that is to say entirely normal and healthy, bodies, and only a fool would doubt it, one would think that the already enumerated unnatural living habits of civilized peoples might reasonably account for the prevalence of their terrible and terrifying diseases.

But there is still a number of other habits that run riot in civilization that must be given consideration.

I shall leave out those excesses of so gross a nature that they are all but universally recognized for the health-destroying evils that they are: such as sexual excesses, whether merely mental or grossly physical, since there is probably as much evil done by the former as by the latter and by people who think themselves good because they do not yield to the latter; also inebriety, whether due to alcohol or drugs.

After eliminating those gross stupidities, there still remain the drinking and other social refreshment habits of civilization.

If we can find that these are natural habits and have the sanction of nature's laws, then, of course, they must promote the building of natural, therefore normal and healthy, human bodies. But if they prove to be unnatural living habits, what then? If natural living habits promote the building of natural human bodies, do unnatural living habits prove harmless? Only a "boob" would seriously ask the question.

Well, then, let us consider the drinks and drinking habits of civilization.

In all creation, what animal, save man, alters a natural product in any way to make out of it a drink? If there is one such, I never have read nor heard of it.

The natural drink of all animals is water. Milk may perhaps be said to be a natural drink, but in reality milk is a food. The same may be said of blood. There are certain flesh-eating animals that are said to "make a kill" merely for a "drink of blood." But, if we knew all, we would probably find that such a drink was in reality a meal for the killing animal.

It still remains true that the one natural drink of all other animals than man is water.

But what of the drinks of civilized mankind? Let us first see what civilized man drinks. I suppose it would be easier to say what they are not than to say what the drinks of man really are. In the mass, however, they may be said to be water, tea, coffee, cocoa, chocolate, alcoholic beverages and soda-fountain concoctions. Of these let us pick out the natural products. First, there is the natural product, water. Then there is—let us see—tea? Tea is an infusion of a leaf found in Asia. But are infusions products of nature? No. Then, to start with, tea is not a natural drink. It is a drink made by changing a natural product through the artifice of men. When we infuse any substance we do not extract all the natural properties of the substance. And some of those extracted may have injurious properties. In the instance of tea, this happens to be the case. A poisonous alkaloid, thein, and an astringent substance called tannic acid are both extracted by infusing the tea leaf and those who enjoy tea drink from fifteen per cent. to thirty-two per cent. of an astringent drug injurious to the stomach-secreting glands and not avoided by a short infusion, as so often claimed. Then there is—coffee? Is coffee a natural drink? Coffee is a drink made by percolating or boiling a roasted and ground bean for a varying length of time. The roasting and boiling can hardly be said to be conducive to making of coffee a natural product. As a result of roasting, coffee contains certain poisonous properties, as also large quantities of the alkaloid caffein, a powerful drug known to materia medica; and tannic acid, always present independently of roasting. But roasting converts the tannic acid into catechol and pyrogallol, said by a high authority to be "more poisonous than carbolic acid." But there are also a number of other poisons resulting from coffee roasting, so-called "incomplete combustion products," and known as creosote and pyridine and a long list of related poisons. But the chief poisons contained in coffee are caffein and empyreumatic oil. I shall simply pass over the others with the comment that while one cup may not poison any drinker there is always the cumulative effect, which invariably develops its consequences sometime. That cannot be denied nor can it be avoided.

Caffein, however, does not wait long to leave upon the drinker the impress of its untoward effects. The coffee drinker is not long in becoming the coffee habitue, which means that he "feels the need" of it. Or he "has a headache without it." Or he "needs a bracer" and coffee supplies it. Or he is "nervous and cannot concentrate" until he gets his dole of dope in the form of the powerful drug caffein.

The drug or dope habitue is one whose nerve tissues have become artificially stimulated, and thus partially or completely exhausted. Recall that only naturally-stimulated organs can function normally and unnaturally-stimulated functions, organs or parts tend to be destroyed. What matters it whether it is caffein from the drug shop or from the coffee urn that one dopes one's blood with? It is the same dope.

"Yes, but I seem to need it; I'm a different woman when I get my cup of coffee." Which is the best possible proof that she is a drug addict. When one "needs" a pipe of tobacco or a cigarette or a dram of liquor or a shot of cocaine or a hypo of morphine or a cup of tea or coffee, one is an addict. And the very "need" is an evidence of the most fundamental sort that the drug has "got in its deadly work." A person who "needs" any stimulant is an abnormal person and the more such persons force their nerves along on artificial stimulants—which is what all of these products are—the more abnormal do they become.

I use the word "stimulants" in its commonly-accepted meaning, for all such agents as I have referred to are really depressants in the end. All these agencies lower the level of cellular activities and cause early aging in their dupes. And surely this is what unprejudiced thinking would direct us to conclude.

If artificially-stimulated organs and functions tend to be destroyed, what are we to expect of this artificial stimulation? Such stimulated organs and functions must lose in functioning power or strength—and this has already occurred when the owner of such organs feels a "need" of a cup or a needleful. Such a person's organs have begun to lose functioning or working power and have begun to degenerate and disintegrate, manifesting symptoms of functional exhaustion in the absence of the customary dope. This degeneration of its inherent functional power is only the sequel to a loss of impulse-imparting power by the governing nerves. Every iota of function manifested by any cell, organ or body part is in response to a nerve-imparted impulse. Not the merest tendency to work or function can ever take place in any cell unless an impulse is first conveyed to it by a nerve fibre. Cut the nerve supply to any organ or cell and it is forever functionally dead. Weaken or exhaust or degenerate the nerve and it loses impulse-imparting power in proportion to its weakness, exhaustion or degeneration.

Stimulant drugs—and caffein from tea and coffee is an active alkaloidal, stimulant drug—do supply a "pick-me-up," a "bracer to the nerves." But in proportion as the nerves are forced or urged to function by an artificial, that is to say unnatural, urge or stimulant, they become exhausted and cannot respond to a natural urge or stimulus. In this exhaustion from artificial stimulation the conscious sensation of the habitue is that of discomfort, disinclination, weakness or disability and irritability, depending upon the extent to which the nerves are exhausted by the degenerating and disintegrating drug. Nor will the disability and irritability disappear until the habitue receives another "shot" of his dope, his drug, be it in the form of cocaine, morphine or caffein from coffee or tea; "thein" from tea being only caffein under a different name.

Does it require argument to prove that these unnatural drug-drinks cannot even assist in building natural or normal human bodies? And if they do not build normal bodies and do act as "dope," tending to destroy the natural impulse-imparting influence or stimulus to cells or organs, in response to which they do their work, then what kind of bodies do they help to build? Who shall deny that these potent poisons, so universally used by civilized peoples, play their large part as causes of the diseases of civilization?

Is this one of the habits of civilization that savage peoples do not have that may reasonably be assumed to cause the diseases of civilized peoples that the savage peoples do not have? Now, there is something in that question to think about before answering it.

Cocoa is akin to coffee and tea. Its alkaloidal poison is "theobromine," which Gould's medical dictionary defines as "an alkaloid which is closely related to caffein and xanthine."

A prominent dietetic authority, Kellogg, gives the caffein percentage contained in various common drinks as follows:

Drink	*Percent.*
Cocoa	1.00
Coca Cola	1.00—1.2
Coffee (roasted)	.75—2.05
Kola	2.00
Matté	1.115
Tea	1.35—1.75

Everything that I have said with regard to tea and coffee applies equally to the rest of the above-named drug-containing drinks. So much more might be said against their frequent use as to become tiresome.

Then there are the alcoholic beverages. Are they natural drinks? O no! no! Everything that has been said above with regard to tea, coffee, cocoa, coca-cola, kola, matté, applies with even greater force to alcoholic beverages.

Alcohol probably does stimulate the glands of the stomach to secrete digestive fluids; but this is generally only true of the supersensitive stomach, secretion in which is inhibited by its sensitiveness to irritation. The depressant properties of alcohol dulling sensation allows such relaxation to take place that secretion occurs. But this is "beating the devil around a stump" with a vengeance, for the alcohol soon becomes an irritant itself, adding to the inhibition, then more alcohol is called for, resulting in more depression and then more alcohol and more depression. Does it require a logician to say that soon the cure has become the dominating influence in the disease? No. A "boob" could answer and answer correctly that alcohol is an artificial stimulus, therefore an unnatural one; and "unnaturally-stimulated functions tend to be destroyed."

Artificial stimuli wear out and exhaust functional power, when they do not break down the functioning cells, and the end result is disaster.

But Sir William Roberts has demonstrated that, while alcohol promotes the flow of gastric juice, it prevents its combination with the food it is intended to digest.

Alcohol is, therefore, useless, even temporarily, as an artificial aid to digestion; which is enough to condemn it even if it were not true that artificial aids to digestion ultimately destroy the natural digestive function. So, while we secure no temporary digestive aid from taking alcohol into the stomach, and, on the other hand, we wear out the natural digestive power so that the end result is that little digestive secretion is formed at all, what sense can there be in using alcohol at all?

The above leaves out of consideration altogether the well-known degenerative effects of alcohol upon all the body tissues, but especially upon the nervous tissues, the liver, the heart and bloodvessels.

So prone is alcohol to cause nervous degeneration that the first thing a physician thinks to enquire about, when a patient showing the stigmata of nervous degeneration presents himself, is alcohol.

A few paragraphs back I referred to the fact that all organic function, meaning all work done in the body for the body, is done in response to nerve-imparting impulses. This means that all manifestations of life are really responses to nerve impulses. Therefore, the more vital the nervous mechanism is, the more the body is alive and the more vital resistance it possesses. Yet let a physician be called to the bedside of a very ill patient, a patient, say, with pneumonia, and after enquiry he is told the patient is an "alcoholic," a "dipsomaniac"; watch him shake his head and look grave. What is the reason? The physician knows that the vital resistance of the patient has been, more or less, destroyed because the vital impulse-imparting power of the patient's nervous system has been more or less destroyed by alcohol.

It is the same with a patient showing symptoms and signs of liver obstruction. The physician, upon being told that the patient is an "alcoholic," knows at once that the case is hopeless, because it is almost certainly a case of alcoholic cirrhosis of the liver, or alcoholic hardening of the liver.

Let the physician be consulted about a case of mental disturbance with a gradual onset and manifesting a gradually degenerating mental power and upon discovering that the patient is an "alcoholic," a more or less constant user of alcohol, even in "reasonable quantities," and again watch him shake his head and look grave.

The same applies to heart and bloodvessel diseases.

Positively, there is not a single diseased condition that he may be called upon to treat that will cause the physician to rub his hands in manifestation of his satisfaction when he is informed that his patient is an "alcoholic"; not a single one.

If the reader fails to get any other thing out of this discussion of the effects of alcoholic consumption, be sure, reader, to get that. There is not one single pathological or diseased body state known to the medical profession over which the doctor will brighten his own hope or the hope of the friends of the sufferer upon being informed that the patient is an "alcoholic"; addicted to the steady use of alcohol. Is that not sufficient condemnation of this highly poisonous drug?

All this is apart from the well and universally-recognized disturbances of the moral and spiritual life of the habitue and its greater or less destructive tendencies in social and domestic life and its tremendous economic cost. But that is, perhaps, a feature of the alcoholic question that does not properly belong here, and yet it has definite relation to bodily health.

Consider what effect the consumption of over one billion dollars' worth of alcoholic beverages by the people of the United States in one year—and in like proportions by the people of Canada and other civilized peoples—may have (might I not say must have?), in causing the diseases of civilized peoples, especially when added to the use of too much food, refined and unnatural foods, excess-acid foods, artificial stimulation of the body by tea, coffee, coca-cola, kola, cocoa, chocolate, etc.

Last, there are the soda-fountain concoctions. Are they natural drinks. No!

If there can be differences in the extent of unnaturalness of unnatural things, then soda-fountain concoctions are, as a rule, more unnatural than tea, coffee or alcoholic beverages. And by reason of the almost universality of their consumption by all sexes and all ages, but more particularly by the growing child in the formative period of life, they are potentially more destructive, at least.

That is a statement difficult of general acceptance, but that is only because of the general non-comprehension of the truth that only natural agencies can be essentially constructive; whether those agencies be foods or drinks or muscular exercises. Let this fundamental truth, this starting point of all progress in the understanding of the problem of how to build human bodies that will be immune to human diseases, once become fixed in the mind as the paramount truth it is, and the acceptance of this statement automatically follows.

To start with, soda-fountain drinks are responsible for a large increase in the consumption of refined sugar, from an excess of which most civilized people are already suffering.

Then these drinks are almost always taken icy cold.

They contain mixtures of all sorts of incompatible and indigestible substances.

They are consumed at all hours of the day or night, chiefly between meals when the stomach should be allowed to rest and regain power for the next meal.

They thus rob the partaker of appetite for the natural body-building foods and reduce the potential digestive function so that the next meal, even if a good one, will be rendered more or less valueless as a body-builder; therefore, potentially more harmful to the body than beneficial.

Then the most insidious harm of all comes from the large percentage of caffein which is often unconsciously imbibed by the soda fountain habitue.

More and more popular are those drinks becoming which contain "dope" in the form of caffein, drinks such as "kola," "coca-cola," responsible for more "nerves" than coffee has ever been. This is largely because these drinks are consumed mostly by boys and girls in their growing period, and shortly thereafter. There are ever-increasing thousands of young men and women who admit their incompetence for the day's work until they receive their "shot of dope" in the form of one of these caffein-containing drinks.

I would here call attention to the caffein content in the conventional beverages listed on page 157, but with especial reference to matté. This is a South American beverage that health food shops are being induced to exploit as a caffein-free beverage to take the place of caffein-bearing tea, coffee and cocoa. These dealers are no doubt innocent of deceit and have believed what they have been told by the "higher-ups". But the reader will note that matté is as high in caffein content as any of the popular beverages of the northern hemisphere.

The percentages of caffein shown in this list are not mine. I have copied them from a popular late work upon Dietetics.

I print the list here in order that readers may not be deluded into drinking a beverage under a new name, believing it to be perfectly harmless, when it contains as much nerve- and heart-destroying caffein as do the other more pleasing beverages which it is the design of its promoters to have it supplant.

But caffein is not the only vitality-destroying substance contained in these beverages. There are several others, especially in coffee; but I shall mention only one of those common to all, viz., uric acid.

There are thousands of persons to whom red meats, even meats in any form, have been forbidden, and thousands more who refuse "on their own" to eat meat, because it contains uric acid. Perhaps they are sufferers from neuritis, arthritis, etc., and very wisely are restricted in, or deprived of, their intake of uric acid-containing flesh.

But often those same persons continue to indulge, sometimes intemperately, in tea, coffee, cocoa, etc., with what a lack of consistency will be seen when the following list is studied:

Uric Acids and Purins	Grains per lb.
Lamb (cold roast leg)	1.50
Soup (made from bones)	0.48
Soup (made from meat)	1.40
Hosp. beef tea (cooked 8 hours)	7.00
Saddle of mutton	1.40
Mutton (cold roast leg)	1.10
Veal (cutlet)	3.50
Beef (cold sirloin)	1.10
Sheep kidney	3.50
Sheep liver	6.50
Fowl (breast)	1.70
Rabbit	1.00
Mackerel	2.00
Mackerel (boiled 15 minutes)	1.00
Herring (fresh)	0.20
Herring (Loch Fyne kippered)	6.40
Herring (Bloater)	2.20
Beefsteak	1.30
Meat juice	49.70
Meat extract	63.00
TEA	175.00
COFFEE	70.00
COCOA	59.00

What stupidity it is to leave off meats as usually eaten—beef, mutton, veal, etc.—and continue to drink tea, coffee, and cocoa, which contain from about twenty to about 170 times as much uric acid and similarly constituted and acting purins as these foods do.

Well, that is the way we do in civilization. I acted in a similarly foolish way for many years—far more years than those in which I have tried to be rational in my living habits—therefore I cannot condemn others for so doing.

But I can commiserate, feel pity, for those who imagine they enjoy more from, have a greater reward for, doing as their sweet desires dictate than for doing as they ought.

However, commiseration is not the object of this book—rather is it to point a way to the attainment of a vital, disease-free, resultful and altogether glorious life.

I had to see my way out before I could get out, and I did not see my way—did not try to see it—until my hands shook so furiously I could not carry a cup of uric-acid-saturated, caffein-laden tea or coffee to my mouth, and my wobbling old heart was ready to stop at any beat. No, I have no right to "throw bricks" at anyone!

It was then, however, that I did cast about me to devise a way out, and among those measures adopted was the making for myself a beverage that would serve as a hot drink and give pleasure to the palate, yet add no uric acid or other acids, and add no nerve- and heart-destroying caffein to my bloodstream, to be carried by it to the cells forming my vital organs, to depress and destroy them.

But why object to caffein; and is it destructive? Is it not a great heart stimulant, and are stimulants not beneficent in their action on the body's cells?

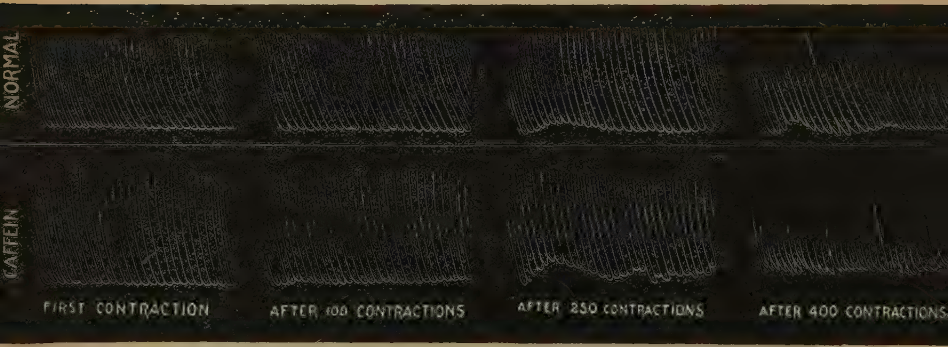
I shall answer the last question first. The reader will recall that in "Basic Principles," a law was given expression to, indicating that "only naturally stimulated cells, organs and body parts function normally," and the converse law was also given expression, viz.: "All unnaturally stimulated cells, etc., tend to be destroyed." We have only to consider for a second to answer the question in the most emphatic negative. It is answered by the unalterable law—

for caffein is an unnatural stimulant, a thing that has no natural relation to the body. It must tend to destroy the body. It does destroy it. This answer makes it unnecessary to answer the other questions asked.

The heart is a muscle. It is the most vitally important muscle in our bodies. It is controlled by nerve stimuli. If the heart muscle is not depressed and the nerve stimuli not interfered with, the heart can continue to beat normally until every other organ of the body gives out.

But the following graph indicates very decidedly that caffein is a muscle and nerve depressant, capable of far-reaching and decidedly destructive effects.

Ergograph Showing Early Depressant Effects of Caffein on Muscle Contraction Below Normal



The drawing shows the effect of stimulation by caffein. Body activities are first stimulated, but erratic and over-emphasized. This soon exhausts the body's energy reserve and capacity for activity falls below normal. Then more stimulation (caffein) is demanded, and more and ever more is always needed to prevent the depression sure to follow the early stimulation. It is this poisonous accumulation that causes heart and bloodvessel disease, so all but universal in our time. KOFY-SUB has none of these destructive effects to offset its constructive effects.

The ergograph is a contrivance for testing nerve and muscle power. The wrist is fastened to a table with the palm turned upwards. A thimble-like attachment is fastened to the index finger. To the thimble is fastened a cord and to the other end of the cord is fastened a weight. The cord is dropped over a pulley. The finger is fully flexed (bent upon itself) in time with a metronome. A pointer is so arranged as to be moved up and down with each contraction of the finger and make a mark upon a revolving drum thickly covered with lampblack or smoke, as shown in the graph.

Note the regularity and sustained evenness of response in the normal muscle and the exaggerated and erratic response of the caffeinized muscles; also how the power of the caffeinized muscles falls to about half that of the normal muscles in the series of the fourth hundred contractions. Yes, caffein is a poison to the vital structures of the body—a cumulative poison—and its usual source, tea and coffee, is also a source of uric acid, than which there is no greater.

To avoid taking these decidedly injurious substances into my system, I devised a beverage from alkaline Roman Meal (Dr. Jackson Meal in the States), honey and aromatic herbs, roasted in the same way as coffee is roasted, thus producing a beverage in all respects similar to real coffee—in color, aroma, taste and "feel" in the mouth—yet containing not a vestige of caffein, uric acid or other deleterious substance—the one and only alkaline beverage I know of, aside from pure fruit juice. I have been drinking it freely as water for twenty-one years, and with great benefit, for it is one pleasing way to take plenty of much-needed alkaline fluid into the system.

In the first four editions of this work I asked any reader who would be interested in procuring such a beverage to write to me to that effect. So many interested enquiries have reached me that I have now decided to place this beverage within the reach of my readers who may desire it. So soon as large scale manufacturing equipment can be installed for its manufacture it will be obtainable through the grocery trade in Canada, United States and Great Britain, under the trade name of Dr. Jackson's KOFY-SUB. Meanwhile, it only can be obtained direct from its makers DR. JACKSON FOODS, LIMITED, Toronto 9, Ontario, at a cost of $1.25 for three commercial packages, postage prepaid, each package making from thirty-five to forty cups, a cost of little more than one cent a cup.

It is now for the reader to consider whether the ever-increasing consumption of these drinks by civilized peoples,

—caffein, uric-acid-containing tea, coffee, matté, cocoa, etc.—a living habit all unknown to savage races, when added to the unnatural foods and feeding habits, the lack of systematized physical exercises, improper clothing and improper care of the skin, poisoning from tea and coffee consumption, etc., also habits unknown to savage races who are immune to the diseases of civilization, may or may not have its effect in causing and increasing the prevalence of those diseases. And it is now coming pretty close to the time when the reader should come to a decision upon the causes of those diseases that civilized peoples suffer from most terribly and savages who have none of these living habits do not suffer from at all.

CHAPTER SIXTEEN

THE UNNATURAL CONDIMENT HABIT.

Condiments—food seasonings—are these natural food substances? No! In fact, they are not foods at all.

Is it natural for man to have condiments upon his foods? Offer any condiment you care to try out to an infant, or even to a well-grown child for the first time, and watch the result. More: offer any condiment to an uncivilized man or woman, unsophisticated in the wonderful improvements upon nature—God's handiwork—for which civilized men are apt to take credit to themselves, and note the result.

After these several experiences, none will believe for a moment that condiments are natural, that they satisfy any natural, physiological need or any natural desire upon the part of mankind.

The desire for condiments is an acquired desire—the use of them is an acquired habit—of civilized mankind. As such, it must be an unnatural habit.

Such a conclusion is strengthened by the fact that no other animal in all creation can be made to use any condiment.

There are some condiments that stimulate the motor function of the stomach, cause it to empty itself more quickly; but these lessen the secretory power of the stomach glands. Others depress both the emptying and secreting functions of the stomach. All condiments, by their irritant properties, tend to produce a catarrhal state of the mucous lining of the stomach. Condiments have all of these defects without one redeeming feature.

Nearly all sufferers from stomach cancer and stomach ulcers are extensive users of condiments. And one ought to expect this result, because it is well known that local and constant irritation is one of the prime causes of cancer in any location.

There is a law, fixed and inviolable, that enables us to understand why it is that condiments must, in their end results, be injurious. That is the law of primary and secondary actions, the action and reaction, of forces. Every primary operation or expression of force has a secondary action, or reaction, and the reaction is the more prolonged.

You can test this law for yourself in a very simple but very effective way, as follows:—

Some day, when you have been out for a long, long hike and feel jaded and disinclined for any further effort, feel that the thing to do is to lie down and rest, try to arrange that at such tired-out period you will come to a high, steep hill before which you know both your strength and your courage are apt to balk. But instead of lying down to rest, have some kind friend act as a stimulant to your jaded strength of nerve and muscle by taking a whip to you and lashing you with it until you climb all the way up, and in record time. True, now you are up, but the hour or two at the bottom which would have rested, refreshed and recuperated you, and so enabled you to reach the top without strain, will not now refresh and recuperate you. No, for days you will feel the depression arising from the stimulus applied by that whip, proving that the reaction from the action is the more prolonged.

This is as true of all artificial stimulants. Their end effect is to depress and tend to paralyze.

The converse is also true. Artificial sedatives or depressants are sure to react as excitants, if kept up long enough. The patient who has long taken "sedatives" is about the most hopelessly "nervous" person you can find. All this is what one would expect who understands the law outlined in "Basic Principles" that the interfered-with function tends to be destroyed.

Gastric or stomach secretion is a normal function. If it is stimulated only by natural stimuli, which exist only in natural foods (because the founders of our race ate only such natural foods), this function will never fail. Put that down as an indisputable fact.

Condiments are stimulants, primarily. Their primary action is to stimulate the stomach function. But they are whips that artificially interfere with the natural stomach functions. They have a secondary action, a reaction. Reaction is always the opposite of primary action, and also always the more prolonged. The primary action being stimulant, the reaction must be depressant and more prolonged than the primary action. Therefore, the end result of artificial stimulation is not stimulation but depression, the opposite of that which was aimed at. It does not require one to be a logician to infer that, when this interference with normal activity is kept up in connection with the digestive function, the digestive function tends to be destroyed.

A well-known food authority, Dr. Kellogg, has this to say regarding condiments:—

> "Man is the only animal that deliberately commits suicide by self-poisoning. He is the only one that spoils his food before he eats it. The average man suffers constantly from chronic poisoning. He doses himself with poisons of various sorts which, in the aggregate, make a per capita dose of more than fifty grains of poison in every twenty-four hours for every man, woman and child in the United States. He begins the day with a poison dose in the form of coffee to wake him up. After breakfast he smokes a cigar to settle his stomach and quiet his nerves. Before dinner he swallows half an ounce of whiskey or bitters to get an appetite. He finds an afternoon cup of tea necessary to cure an after-dinner stupor, and at night needs an opiate to get to sleep, and in the morning a cathartic to move his bowels. With his other poisonings he deliberately spoils his food by putting into it toxic substances, the excretions of plants, which, by means of acrid, biting and burning flavors are labeled by nature as belonging to the poison class and unfit to be eaten. These products, used only for their flavoring properties, having no food value, are known as condiments."

Add the extensive use of condiments that every reader knows is such a constant and universal habit or practice of civilized mankind to the other unnatural habits already outlined, having to do with foods and feeding, muscular exercise, improper care of the skin, poisoning from tea, coffee, alcohol, soft drinks, etc., and continue—if the reader any longer can—to wonder whether these so-unnatural habits of living, so constant among civilized peoples, may or may not be responsible for the diseases of civilized peoples, diseases that are totally unknown to the simpler peoples who have none of these so-unnatural living habits.

CHAPTER SEVENTEEN

THE HEALTH WASTE IN NERVE AND MUSCLE TENSION.

When one starts to chronicle the unnatural living habits of civilized peoples it seems as if one could go on indefinitely and not exhaust the subject. I have now covered many pages and it seems almost as if I am as far from the end as I was at the beginning, so manifold and diverse are the habits of civilized mankind that are at cross-purposes with nature.

I have the fear that, should I carry this criticism too far, I may weary the reader and thus defeat the end in view, which is to impress the mind with the utter stupidity manifested by civilized people in their attempt, consciously or unconsciously, to leave nature out of account in the most important consideration in physical life.

However, I must ask indulgence for yet one more chapter, after which I shall proceed to show in what way these defects may be remedied—reserving further criticism for occasional comments in connection with the more constructive work in future chapters.

Tension—relaxation—repose! What do these terms mean in relation to the unnatural living habits of civilization? Simply that, in all creation, civilized human beings are the only animals whose muscles are more or less always in a state of tension, when they ought to be at all times in a state of repose and relaxation, save for the moment when any muscle is in the act of accomplishing some purposeful action; then only the muscles or the group of muscles actually concerned should be in action and all others in a state of complete repose or relaxation. It means that almost everyone in civilization constantly fritters away more vital energy in uncalled-for muscular contractions than is called for in all the constructive operations of their daily lives. And that means what? Recall that I have repeatedly pointed out that no single body activity can be carried on without a stimulus from the nervous system. Constant muscular tension must mean a constant nervous expenditure, as well as muscular, for which there is not an iota of return to the body, nor can there ever be, and in the end such nervous waste means nervous exhaustion.

While it is true that everywhere in civilization this involuntary and unconscious tension of the nerves and muscles of the body is evident, it is far more evident in Canada and the United States than among any other of the civilized peoples. This is at once manifest in the *stridor* of the voices one hears everywhere.

Note the people you are associated with and see them hold the chair down, instead of relaxing onto it and allowing it to hold them up. Note in others, or perhaps in yourself, the teeth clamped together, probably being rubbed together; note the contracted throat, the neck muscles taut; note the leg muscles of that man all tensed, the fingers or feet beating a tattoo to some keyed-up, mental restlessness which must find vent. Note how those other persons whom you know sit tight in the train or motor or street car, pressed against the back of the seat or perched uneasily upon its front edge, arm and leg and neck and chest muscles tensed, their bodies jerking stiffly with every jolt and jar of the conveyance instead of yielding, loose-jointed and loose muscled, to every sway or jerk or movement. Watch those others walking with jerky steps and stiffened arms jerking in complete unison with the jerky steps, the neck and hands tensed until often the imprints of the nails are pressed into the palms. Just watch that woman "resting" upon her couch, her neck rigid and holding her head up from settling itself to soft repose among the pillows, or else pressing against the pillow as if to hold it down instead of just allowing the pillow to gently support her head by relaxing and letting go every muscle, as the child or cat or dog will do when lying down. Lift her arm gently up and note how the hand sticks stiff and straight instead of falling limp and untensed, hanging loose from the wrist. Suddenly withdraw your own hand and leave her arm unsupported and note how it remains held up in the air, showing how her arm muscles were unnecessarily tensed, for her muscles were not needed to hold her arm up while you were supporting it with your own hand. If her arm muscles were not unconsciously tensed her arm would have fallen limp and loose as a dead arm would. Watch that man grab his pen and jerk through the process of signing his name instead of smoothly completing the job with the same deliberate control that a baby uses in putting its fist in its mouth. Watch that other man at the railroad station pull out his watch every few minutes and look at the time, although he is well aware that the train does not leave for an hour or more. Note the jerky, shallow breathing of that woman, with the occasional sigh which nature compels in order to supply the oxygen with which the short and shallow breathing cannot supply her body. Watch that group of women, each sitting taut and tense on the fronts of their chairs and making jerky movements with their hands, their legs and bodies tense, and all cackling with strident voices, showing tensed facial muscles that, if they persist in maintaining them, will make them look old long before their natural time. Watch that man and woman snatch up knife and fork or spoon, or a piece of bread or other food, as if playing a game of grab instead of gracefully extending the hand as a very young child would do; not because of bad manners, but because they have not taught their nerves and muscles to behave.

Only constantly and consciously relaxed muscles and joints can be gracefully moved without fuss, but with the utmost precision as to time and space.

Now study yourself and note how many of these evidences of continual body tension are manifested in your own body. Have someone lift your arm and note whether your hand hangs loose from the wrist or sticks out stiff and rigid, and, when the supporting hand is suddenly withdrawn, see whether your arm drops lifelessly to the couch, as if it were a paralyzed arm. Lie on a couch and have someone roll your head from side to side and suddenly stop, and see if your head immediately stops moving and rests in the exact position it was in when the hand moving it was withdrawn, if the position is an unstrained one, or the head rolls back into a position where the strain is automatically released, and then stops just as the head of a dead, limp body would stop. Or does your head tend to keep on moving in the direction in which the hand was moving it when it was withdrawn? In 99 cases out of 100 it will, if not in 999 cases out of 1,000; but see if yours will. If it does or your hand or head stays up in the air, not dropping limp and uncontrolled immediately the supporting hand is withdrawn, you are in a state of chronic musculo-nervous tension and this is wearing out your vital nerve force. Note when you put forth your hand to take hold of some object whether your hand and arm used for that purpose are the only parts of your body that feel an impulse to move, and if the movement in those members is jerky, or the hand shot out and withdrawn with a snap, or in the most deliberate way with no sense of uncertainty in picking up the object and with no sense of haste in either the muscles, nerves or mind, but with a feeling of placidity as if nothing mattered. If the former, you are frittering away your life force in tension; if the latter, you are one of the elect, bound, other things being equal, to live years longer as a useful member of the human family than if you are spending your vital force to wear yourself out, to no earthly purpose. Study yourself when walking to see if your whole body is held rigid, jerking along with your jerky steps; or do you swing your legs with a free stride and does your whole body sway rhythmically to the movements of your legs, your arms swinging more or less flail-like at your sides? If the former, you are rapidly wearing out your vital reserve—that force that nature designed to protect your body from attacks of disease. If the latter, you are increasing your vital store by the act of walking in the sunshine and out-of-doors air, using only the force needed to move the legs. Go through your every volitional activity and see if your movements are deliberate and intentional, controlled movements, using only as much force as is needed to perform them; or are they random and overdone, every muscle in the body being more or less brought into play? I care not who you are, if you are civilized and descended from civilized ancestors for three or four generations, you will find that you are wearing yourself out. That is, unless you have already, by a conscious effort and a course of training in self-control, eliminated this inborn habit of civilization, or emancipated yourself from its bondage.

Now, reader, add this strain—and it is a most damaging drain upon the body's defensive forces—to the strain of trying to care for the poisons derived from taking too much food, from wrong combinations of foods, from excessive foods, from super-refined foods, from unbalanced meals. Then add to all of these the poisons generated from constipation, from indigestion, from alcohol, tea, coffee, cocoa, chocolate, soda-fountain drinks and concoctions; from tobacco and sweets; from unmentioned but equally effective sources, the uncontrolled emotions and passions; aided and abetted by the direct irritations to the nerves and organic tissues from condiments and alcohol; these all again aided and abetted by coddling the body through the wearing of layer upon layer of clothes, shutting out all unimpeded contact of the environmental defensive reflexes of the body with their natural stimuli: the wind, sun's rays, rain, fog, dew, heat, cold, the earth itself, so that the body's natural defensive forces are weakened or paralyzed by under-use or disuse; all of these still further aided and abetted by living in superheated houses; sleeping in warm, unventilated rooms; riding in stuffy, overheated, overcrowded street cars; bathing in hot water in a hot, humid, stuffy, breathless bathroom; these devitalizing influences all brought to a focus by refusing to vigorously exercise the whole body to the point of tiredness and more or less prolonged deep breathing and an occasional sweating in the out-of-doors. Total up all these influences that must wear down the vital resistance of the civilized body—influences, not one of which operates in the lives of those less-sophisticated, savage races that are free from our so-painful and disabling diseases. Then mentally sit back and contemplate that total —try to mentally picture what it must mean in its effects upon our resistance to the onset of the body-disintegrating forces by which we are surrounded and, perhaps, permeated, and which, if not held in check by our body's vital force, must result in those broken-down organic states which we know as diseases.

Before coming to a final decision, consider that tuberculosis and rickets can be cured and prevented by exposing the body to direct contact with the sun's rays, out-of-doors fresh air and good, natural foods; that many skin diseases can be speedily cured by the same means; that the best known means for checking arterial degeneration are these same measures with properly controlled and systematized physical exercises in the open air; that swimming is one of the best of all exercises, partly because of the uniform exercise of all the voluntary muscles in swimming, but equally or more so because of contact by the body's defensive reflex terminals located in or on the skin with cool water, cool air and the sun's rays.

I ask the reader to take a half hour to turn all these factors over mentally, then of a sudden recall that God did intend man to live in the open, unhoused and unclothed, and to feed upon the unchanged foodstuffs of nature, even as the forefathers of the race must have done for age after age while perfecting the anatomy of the race and yet were entirely disease-free; even as hordes of simple men still live and are disease-free; that "incurable" civilized men often return to primitive life and recover perfect health in spite of the "hard" life, or by reason of it.

Now, having done all this, the reader is asked to make his decision. Reader, when you are sick, is it your present belief that God in His inscrutable wisdom saw fit to afflict you so? Or is it your present belief that your diseased condition is an affront to God, a condition brought upon yourself because of your own and your ancestors' disobedience to God's health-ensuring laws; a condition induced by your doing what you wished and refusing to do what you ought? Are you able to see now that God is a good God and that He intended you to be always well, as all of His untamed creatures are, and, with that end in view, He gave to you a Defensive Mechanism which, given a decent chance to function, will automatically ensure you complete immunity from disease; but, interfered with, it must break down and yield your body up to the body-disintegrating forces that mean ultimate disease?

The reader ought now to be able to answer the question raised at the close of chapter one.

If you cannot agree with me, after mature contemplation, that you will be the cause of your disease, if you become diseased, through living habits that differentiate you from the natural or savage man, then read no further. You cannot be interested in the concluding section which is a presentation of the *modus operandi* by which a natural immunity from disease may be attained and maintained in civilized life by compensatory natural means; based entirely upon the confident belief that man was intended by his Creator to be a perfect animal—that is, an animal not naturally subject to disease, and that He provided man with a means to that end—the Human Defensive Mechanism.

PART THREE

PROLOGUE TO PART III

(Reprint of Editorial by the Author in Archives of Therapeutics, New York, October, 1926)

WHY BE SICK?

OR MAN'S NATURAL IMMUNITY FROM DISEASE

As I sat down to write just now my eye, in the act of sitting, chanced to fall upon a scrap of age-stained paper. From it I quote the following:

> "Sydenham, master physician, said: 'If I have had any special prescription for my reputed success it is that I have been my own authority. Not that I have always originated my more important ideas—for I have not. As often have I sifted them from the questions raised by others, frequently from the most obscure sources; but, being untrammeled by the authority or traditions of the so-called great, I have looked into things, read everything; which has given me the chance to be original, to accumulate facts from unsuspected sources, and so to be a little in advance of my time.'
>
> "Sydenham achieved greatness because he looked into things which other men passed by—thus he became—Sydenham."

Of all Sydenham's contemporaries, whose names have come down to us—and they are not many—his name shines immeasurably the brightest. Was he a conventionalist? Not in the least. Was he fearful of original thinking or fearless in the exercise of his own penetrating thought? No to the first, and an emphatic yes to the latter question.

What the authorities said, their peculiar, even fantastic, notions of etiology and the use of human artifices in the treatment of disease he ignored and thought his own way through the maze of distracting ideas and claims of his time concerning causation and the cure of disease to the conclusion that disease is self-caused, and, when cured, is cured only by the unobstructed play of the reparative processes of nature which exist in the body itself and in its natural environment.

Regardless of the views of the bacteriologist, modern medicine appears to be upon the threshold of coming to the same conclusion, especially with regard to such diseases as tuberculosis, rickets, scurvy, beriberi, and pellagra, although modern medicine may not know it yet.

This slip of paper caused me to reburnish my slight information about this great luminary of our profession, born a little over 300 years ago. From one author I quote as follows:

> "Sydenham's place in the history of medicine has already been given. Seemingly behind his age in science he was really ahead of it in practice. In acute disease he read that forthputting of that activity by which nature sought to right herself—an activity to be watched and, when possible, to be assisted. Chronic diseases he also viewed with the eye of Hippocrates, as due to habits or errors for which we are ourselves mainly responsible, and these he met by appropriate changes in diet and mode of life. Among special contributions to nosology he may be said to have first diagnosed scarletina and classified chorea. Gout was another ailment on which he left a memorable mark."

It is encouraging to one who is inclined to take issue with the view that micro-organisms are *the* cause of disease to discover that he is in such good company as Hippocrates and Sydenham, both of whom seem to have viewed disease as a condition—largely habit-induced—within the body itself, and not an entity or thing entering the body from without.

I am not now antagonizing the idea that bacteria may be causative and largely control the course and picture of a diseased condition, but that bacteria are *the* cause of disease I cannot accept without doing violence to my intelligence. The internal, self-caused, habit-created, antecedent condition must be present or bacteria are as powerless to cause disease as a flea would be to wrestle with an elephant.

This is the view of disease causation that I am sure would soon become general if we could rid ourselves of the influence of heredity and convention upon our thought processes. As I have said, we are hovering about the very threshold of this conclusion and when we do enter and become possessed of it we shall sit back in wonderment nonplussed as to why we hovered about the threshold so long. And, too, we shall then also see how easy it might be to establish a complete immunity from disease, especially in ourselves, since we are in control of all the factors; and thus escape the sneers now often directed at our profession because we cannot keep ourselves well and we die as early as do the persons who look to us for guidance in matters of health.

In the last few issues I have aimed to show how environmental contacts and systematized physical exercises may be utilized in civilized life to endow us with some measure of the immunity from disease which nature must have intended us to enjoy.

For some time it has been known that exposure of the nude body to the direct rays of the sun makes the blood more bacteriacidal. This coincides with what one ought to expect, if my contention or theory regarding the effect on the body of environmental contacts has any foundation in fact.

Moreover, it will yet be demonstrable that these same contacts have a profound and far-reaching effect upon glandular activity; upon oxidation; upon metabolism generally; and that these effects are the result of stimulating, by natural means, the reflexes governing these functional activities.

The same will be true regarding the systemic effects of physical exercises. Even now this fact has been demonstrated by science. I quote from Sir Almoth Wright to prove that this statement is true. And Sir Almoth ought to be acceptable as an authority to those who accept or desire no other proof.

> "It is only the last year or so that I found that the blood of footballers, much as I dislike the game and all its works, is more bacteriacidal after playing the game

> than before. I give football only as an example of physical exercise. The germ staying power is increased after any game."
>
> So says Sir Almoth.

How else would one imagine the blood would become more bacteriacidal than by its increased oxygenation and by augmented glandular activity, through which hormone and enzyme production would be increased and CO_2 and the tissue debris together with food debris be eliminated?

If there is any physiological basis for my argument in the September and the present issues, that the functional power of all organs or parts increases with use, when function is induced by normal stimuli through its controlling reflex arc; and that no one function can be normally stimulated without stimulating the normal functions of the entire body, because of the ramifications and interrelations of the reflex mechanism governing all of the bodily functions, then it could not be otherwise.

Increased muscular exercise means increased and deeper breathing. More rapid and deeper breathing means increased oxidation and increased elimination of CO_2. This, in itself, means a purer blood stream, surely more bacteriacidal than a less pure one; but this purer, oxygen-rich blood is pumped through the glandular structures at a more rapid rate, supplying more of the raw materials for secretions which the glands elaborate and, doubtless, carrying to them natural stimuli to greater functional effort in the increased oxygen carried by the blood and the hormones and enzymes elaborated by other glands, especially of the endocrine type. These act, react and interact with and upon other glands and consequently affect glandular secretions over the entire body. And since this increased secretion is brought about by a chain of interacting reflexes, naturally stimulated, started into activity in the first place by the increased functioning of a very important set of organs, the voluntary muscles, it is not only reasonable to suppose, it would be unreasonable not to suppose, that these increased glandular products floating in the blood stream must have some profound effect upon the blood. And, since this profound effect is the result of natural stimuli, it would be just as unreasonable not to suppose them to be highly beneficial to the blood and to the body which it serves. And anything that is beneficial to, it goes without saying, must be protective of that body, that is, defensive. Since this protection is not some office performed for the body from the outside, it must be some internal, inherent quality, developed within the body itself. And so we find it is. We say of such a body that it is more vital, more alive, therefore it must be more resistant to the things that are the opposite of vitality and life—disease and death.

We can thus understand that the strenuous exercise which playing football entails must increase the bacteriacidal power of the blood. And the most conventional thinker must readily grant that anything that increases the bacteriacidal power of the blood must be a preventive of disease, that is, it must increase by so much the body's natural immunity from disease.

But we have learned only half the lesson if we stop here.

If increased physical exercise will increase the defensive powers of the body against disease, then it must follow that the more strenuous the exercise up to the point where exhaustion begins, but never beyond that point, the more resistant, or immune, must the body become.

And, since the converse must always be true, it must follow that the farther one comes from exercising the body to the full physiological limit the less resistant to, the less immune from, disease and death it must become.

If there is any flaw in that reasoning I do not see it. It appears to me to be thought-tight.

Now if there is anything of benefit to the body in physical exercise, and we have just proved that there is, it is a dead certainty that the more those exercises are organized, that is, systematized, the greater is the benefit likely to be. To me this seems not only likely but an incontrovertible fact.

But it is, I presume, because I advocate systematized physical exercises that my friend stigmatizes that part of my articles that refers to physical exercises as "Physical Culture bunk."

As I see it, my friend exalts the thing he would condemn. Giving to those systematized or organized physical exercises the pre-empted or patented name of "Physical Culture" has that effect, for it surely must be admitted that in the foregoing a strong case has been made out in favor of establishing organized physical exercises as one of several natural means for developing in the human body a natural immunity from disease. Rather should I say assisting the body to re-establish its natural immunity from disease. For there is such an immunity awaiting the body that fulfills the requirements of immunity. A candid and rational consideration of the facts of human development, either from the evolutionary or the special creation point of view, makes the establishment and existence of such forces as may be taken advantage of to make the human body physically perfect an undeniable fact, therefore an inescapable conclusion. And if physically perfect, how can a human body become diseased? Now there is something to think about in that. Con it over.

Then, since this is such an inescapable conclusion, what shame should be ours, as physicians, men and women devoting our lives to the study of the question of bodily health, when we, in our own bodies, suffer from disease? What an impatience with ourselves we ought even to feel when we suffer from minor aches and pains; that "tired feeling" or headaches or colds, every single manifestation of such malaise being a screaming evidence that we are ignorant men and women, not doctors of health. No, we are not, as a rule, doctors of health. Neither do we pretend to be. We pretend to be and we are doctors of disease.

We treat disease and we think disease. We neither treat for health nor think in terms of health. Yet there is not one of us who is not cognizant of the disease- or health-promoting potentiality of thought.

And there is something more to think about. When I think about it I see thought as a natural stimulus to reflex activity. If we think in terms of health, we set up healthful reflexes in every body organ and cell through the media of the interrelations of the reflex nervous mechanism. You believe this or you would not, when you call upon your patients, spend so much effort upon those really sick enough to need your good offices, in reassuring them and trying to get into their minds the fixed belief that they are getting better and are surely going to get well. You believe it and you act upon it when you, in righteous wrath, hound out of the reach of your really ill patients all those cheerless Grundys who do not bring into the sick room a vital, radiating optimism, so vital as to be capable of communicating its reflex-stimulating power to the defensive reflexes of your patients. Visitors of this latter type you welcome as your best allies in the fight against disease and death.

But perhaps you never thought out the *modus operandi* of this beneficent effect. Just accepted the conventional belief that thoughts do affect the course of convalescence, because it is one of the shibboleths of our profession.

Come to think of it, you must have done just that if you have not yet arrived at the conclusion that since thinking disease can prevent a sick person getting well and thinking health can help a sick person to get well, then to think in terms of health must surely help a well person to stay well.

Of course, you won't accept this as gospel, and I do not wish you to either. But don't turn it down until you have thought it out by thinking all around it. And don't accept any reason that can be questioned. The only hope that the protagonist of a principle can have as to the spread of recognition of the truth of such principle is that he can rouse people who ought to be thinkers to think about it. Perhaps you may come to some other conclusion; I cannot.

In fact, I believe you will in the end think your way to the conclusion at which I have arrived, that thinking in the terms of health is the keystone of the arch of health, of natural immunity from disease. Why, when one thinks in terms of health—of natural immunity from disease—one is compelled to be cognizant of the great constructive forces of nature which continually evolve order out of chaos, the living in harmony with which simply compels perfection in those life forms which these forces have evolved. For those forces are inerrant. They make no mistakes. What may seem like mistakes to our muddled thinking is the sweeping aside of obstacles to the free play of those forces. Nature makes no provision for obstruction to the fulfillment of her decrees. She works only for and with perfection. Sickness—diseases—are not perfection, therefore they are unnatural, for they are not what nature would have. They are evidences of opposition by the sick body to the health laws of nature, which opposition nature is sweeping ruthlessly aside.

If I am sick it is not chance or nature that makes me so. I am sick because I have made myself sick and I ought to feel ignominy and shame for the ignorance and indulgence that brought the sickness about. All of which applies equally to you; applies more so to you, if it happens that you are ever sick. I am never sick, but I could so easily be—I know how. But, too, I know how to keep well—how to always keep well. So, also, may you.

I begin by thinking in terms of health—realizing that nature intended that I may be always in perfect health. I am then convinced that if nature intended me to be perfectly well she must have made it possible that I can easily be well. Thus is set up certain reflex activities which favorably react upon my bodily cells and organs. These favorable reactions make clear thinking more easy. It is then easier to think my way through the problem of how to live healthfully and thus visualize what it is that nature would have me do, for what she would have me do is what I must do if I will be well.

The clear thinking that comes with thinking in terms of health and its entailed favorable reactions shows me that I must do the best I can to meet nature's demand that I live out of doors unclothed. This I do to the best of my ability, in civilized living, by exposing my nude body for at least two hours daily to the natural environmental contacts, the sun's rays, cool moving air, cool or cold water. These natural contacts set up other defensive reflexes which induce further favorable cellular and organic reactions which, by reflex interrelations, favorably influence the entire body. But clear thinking, now even clearer, shows me that I have only begun to co-operate with nature's health laws. Reason points out that I would not be so wonderfully equipped with skeletal muscles whose very evident function is the expenditure of great physical force or effort if nature had not intended me to exert through them great force. Exercise great force through not just a few groups of muscles, but through all of those skeletal muscles, therefore the need of systematized exercises that will apply to all muscular groups.

Immediately I meet nature's demand in this I set up other reflexes which cause favorable reactions in the bodily organs and cells of the entire body, through the associative mechanism of the reflex nervous system.

And clear thinking again tells me it is just as important to rest and completely relax these muscles, because throughout all nature's ways there is the evidence of an ever-recurring activity and repose. Thus I know I must seek and find enough of sleep and rest or repose.

But clear thinking does not stop here. I am compelled by clear thinking to recognize that I might do all these things yet die if I ate no food. And I cannot come to this conclusion without coming to the opposite conclusion, that I will die if I eat too much food. Too much is too much because it is more than the laws of nature demand, and nature's way of dealing with her would-be obstructionists, the violators of her laws, is to sweep them aside; which she does by the processes of disease.

So, too, must I suffer disease and premature death if I live upon unnatural foods, foods other than those provided for me by nature; or foods provided for me by nature but changed by the intervention of human art to be radically different from that state in which nature gave them to me. Clear thinking, therefore, tells me that if I would be immune from disease I must, in addition to obeying all the other commands of nature, also obey in the matter of feeding by living largely or entirely upon natural foods. For natural foods, in their turn, set up reflex activities that induce favorable cellular and organic reactions throughout the body through the medium of the associative reflex mechanism.

Really, now, is there not reason enough given here why I ought to be, as I am, free from even the tendency to disease, or even to physical and mental inertia and malaise of any kind? And if this regimen will keep me immune from disease or mental or physical malaise or inertia of all kinds will it not similarly defend any and everyone whose eyes and mind and bodies take in these thoughts and do these things?

CHAPTER EIGHTEEN

MAN'S HOPED-FOR DESTINATION—PERMANENT HEALTH.

And now for the constructive part of this work. In one sense it is the most important part, but in another sense it is not. When people are on a wrong road to their destination the most important service that can be rendered to them is to point out their mistake. But when people do not even know that there is a road to the destination they hope to reach it is equally important to point out to them their mistake.

In the preceding chapters I have tried, and I hope successfully, to set these two classes of mistaken people right.

But there is another class that is even more unfortunate. That is a class that cannot know that there is a path to their destination, for they have no known destination.

The first two classes hope some time to arrive at the destination—Permanent Health; generally by some short cut which leaves nature out of consideration. The third and most numerous class have not thought of such a destination, because they have not come up against the obstacle to their onward progress—disease—yet.

The first two classes generally understand the latter's viewpoint because they once belonged to that class.

The latter class, however, have no understanding at all of the other two. And it is hard—O, so hard!—to show them that there is a road to travel to the destination, Permanent Health, because, as the other two classes once thought, they think they are at that destination now.

It is because there are so few people who know that there is a road blazed by nature to their hoped-for destination that pointing out there is a wrong road becomes of equal importance with pointing out the right road.

As we have seen, the wrong road is any road built by the artifices of man. The only road that goes even in the direction of Permanent Health is the way of nature.

It is one of the tragedies of civilization that only the first two classes can be guided towards the way of nature; and even of these but a few. Yet, if the third class could be brought to see that they, too, will some day be seekers for a way to Permanent Health, and would allow themselves to be shown that way in time, the other two classes would in no great length of time disappear, and mankind would soon bloom into the unsoiled and uncrushed flowers of creation that God intended them to be; as visioned in the Prologue to Part One of this Book.

However, it is one thing to know the way one's self and quite another thing to point it out to the blind—blind because they often will not see.

Nature's way to Permanent Health! That is what I am to try to point out. And it would be easy as fighting to a gamecock to show nature's way to those who really desire to be shown. But from long experience I know full well that most of those seekers who think it is nature's way they want to find are fooling themselves and trying to fool me. It is not nature's way they want but an easy way—any easy way. Not an earned but a purchased way. Yet nature's way is the earned way—the way of duty—the way that is guarded by "ought," to most of us never an easy way, because we are so out of harmony with nature. To one in tune with her nature's ways scintillate with the stars of hope and jubilate in the triumphs of eternal conquests.

The effort that following nature's way entails is but the generator of currents that move us into the sea of life's supremest harmony. This must be so because we are but a part of manifold nature, and in following nature's way we are but being true to ourselves.

Nature's way, then, what is it? To answer comprehensively, and in a few words, I could say, it is everything that civilization is not.

The truth of this answer will be easily evident when we recall what I stated in "Basic Principles," that the way of nature is that man was intended to live in the open, his nude body exposed to direct contact with the physical environment and to subsist upon the unchanged foodstuffs of nature, just as they come from nature's hand, cooked only in her great solar oven.

What does this mean? That we must return to the savage state and discard our rich and dainty foods, our elegant clothes and our comfortable houses? To some extent, yes. To a large extent, no. But it does mean, nevertheless, that nature's balance must be maintained and, to the extent that we fail to maintain that balance by a return to nature's primitive living, we must learn to compensate that failure by natural means that stimulate our Reflex Defensive Mechanism in the same way that primitive living does.

CHAPTER NINETEEN

THE SKIN FUNCTIONS MUST BE COMPENSATED FOR HARM DONE THEM BY CLOTHES.

What, then, is the way of nature to the destination, Permanent Health?

The reader will recall that, in chapters thirteen and fourteen, I sketchily described the skin and its associated structures: the arrectores pilorum muscles, the two sets of glands, the blood capillaries, the sensitive contact terminals of the reflex nervous system.

In those same chapters I referred to the environmental Defensive Mechanism of the body, consisting of the skin and its appendages, together with the interrelating connections of the reflex nervous system through which every body cell is brought into more or less intimate relation with the skin and with every other cell, as well as with the physical environment. In this anatomical arrangement we find the key to nature's way to Permanent Health.

To fully understand this it will be necessary to keep in mind that man's body has been evolved by the Life Principle out of his physical environment. His body, therefore, belongs to, has certain definite and inescapable relations with, that environment. Any attempt to separate the body from contact with its physical environment must end in some such result as would follow an attempt to separate the human head from the human body. It cannot be done except by a destruction of the body to the extent that separation from the environment has been achieved.

It is, therefore, fitting that we start out with a consideration of how to compensate the habit which men, especially civilized men, have of attempting to separate the body from environmental contacts. To that end man has developed two methods, the wearing of clothes and living in artificially-heated houses, made proof against all direct body contact with the environment to which human bodies belong as much as do the grass and trees and flowers.

The reader will recall that in chapter thirteen I labeled the skin and its appendages the environmental Defensive Mechanism of the body. This is the provision that God gave to us, through the factoring of the Life Principle, for our protection against sudden environmental changes, while living in the open, our nude bodies exposed to direct contacts with the physical environment. And direct contact with the environment—the wind, sun's rays, rain, fog, dew, heat, cold, the earth itself—are the natural stimuli to perfect functioning of the structures forming this Mechanism.

The reader will also recall that in "Basic Principles" I showed it is an inviolable law of nature that organs and functions can only do their allotted work normally when they are stimulated—set to work—by contacting their normal stimuli;—that when set to work by unnatural stimuli they tend to be destroyed. Also, when their function is interfered with or impeded by artificial means or vicariously performed, the functional power tends to be destroyed. I showed that the harder such organs or functions work in response to natural stimuli, up to but never beyond the point where exhaustion begins, the greater is the functioning or working power of such organ or function—the more work it can do, and more perfectly can it perform the work it was designed to do. Take special note of these principles of nature that cannot be altered, therefore cannot be defied, especially the law that unused, under-used, interfered-with or impeded functions, organs or parts tend to be destroyed;—also that functions that are vicariously performed or substituted by human artifices tend to be destroyed. Note there are no exceptions to these rules or laws. The seeming exceptions are merely instances of greater organic resistance, possessed by some individuals, but the destruction of organic or functioning power goes on in every case, nevertheless. In the long end the price has to be paid.

Now let us get a firm hold upon this question and understand it.

Nature gave to us a Defensive Mechanism. There is a lot more to it than the skin and its appendages, but let us stick to that portion of this Mechanism until we understand the principle, since it is the most primitive reflex centre of the body, as will be made clear in the later paragraphs of this chapter.

The function—the business, so to speak—of this portion of the Defensive Mechanism is to defend our bodies against marked or sudden changes in the physical environment, made up of the wind, sun's rays, rain, fog, dew, heat, cold, the earth itself. If nature had not supplied us with some such contrivance we should die when the temperature varied a few degrees up or down or at the first wind or rain storm.

But that Mechanism can only fully function, that is, fully defend us, if it is allowed to directly contact its natural stimuli—wind, sun's rays, rain, fog, etc., or their equivalents of a natural character, for such alone are its natural stimuli.

Remember the power to do normal work comes only from contacting natural stimuli. Only natural stimuli, those contacts that nature intended an organ to have, can induce normal function, or can induce any organ or part to do normal work. If, therefore, this Defensive Mechanism does not contact the environment directly, it cannot do its work normally, that is, so well as nature intended its work to be performed. No use in trying to believe this to be only theory. It is as much a fact as our hands and feet. If this work is not properly done, then our body is not properly defended against environmental stress in the form of environmental change. Since the environment is almost constantly changing, the body whose direct environmental contacts are interfered with is under almost constant strain from these changes, often sudden and extreme. The extent of that strain is in exact correspondence with the extent of the interference between the skin and its natural contacts.

Now the wearing of clothes and living in super-heated houses do interfere with the human skin coming into direct contact with its natural stimuli: the sun's rays, wind, rain, fog, dew, etc. The more clothing, the better the houses, the greater the interference. The environmental Defensive Mechanism is, therefore, prevented from contacting its natural stimuli and to the extent of that interference, must its power to function be destroyed. To the extent that the Defensive Mechanism is prevented functioning is that Mechanism constantly tending to be destroyed, for that is the law. Let me repeat again that nature does tend to destroy the unused, the under-used, the interfered-with or impeded function, organ or body part.

But that is not all. When the skin contacts the environment a lot of other things happen besides the simple stimulation of the skin and its appendages. When the sensitive reflex terminals located in or on the skin surface contact the environment, especially if it is a cool environment, the lungs take in more oxygen and give off more poisonous carbon dioxide. The skin itself takes in more oxygen and gives off more poisonous carbon dioxide. This increased intake of oxygen acts as a natural stimulus to the heart and bloodvessels, especially the heart and arteries. The increased circulation which results from the increased frequency and force of the heart's action acts as a natural stimulus to other organs and other functions. All organs are nourished and built up from materials floating in the arterial blood. Increased circulation with deeper breathing means more blood, carrying more building materials and more oxygen to the organs; which enables the organs to perfect themselves out of these building elements. Many of the body organs are glands. Glands not only build themselves up from the building materials floating in the blood, but they also manufacture substances to be used by other parts of the body. Frequently the substances manufactured by some glands are the natural stimuli to active functioning by other glands and in the absence of which there is no such function. The more of such substance that is supplied to them the more normal is their function and the secretion these second-line glands secrete. This second secretion is also the natural stimulus to function by other glands and their secretion also the natural stimulus to still others, and these to others, and so on, until the entire circle of functions has been reached and stimulated.

But when the sensitive contact terminals located in or on the skin do not contact their natural stimuli in the environment, the lungs and skin breathe in less oxygen and breathe out less poisonous carbon dioxide, the circulation lags, the organic activities are retarded, the glandular secretions slow up and all body functions tend to become passive, rather than active, to that extent lowering the vital resistance of the body, or the body's power to live. This is as we must expect because, as I have several times shown, all the functions, cells and organs of the entire body are closely correlated by the interrelating ramifications of the reflex or sympathetic nervous system.

Note that word "sympathetic," meaning that all parts of the body act in "sympathy" with each other, and the medium of this "sympathetic" co-operation is the interrelating nerve fibres just referred to. Through this interrelation, what affects one part of the body affects all parts, whether for good or ill.

Here is a momentous fact. The first reflex activities in the human body are those connected with the skin. When a human babe is born it does not immediately breathe. The accumulation of carbon dioxide in the blood and contact of the sensitive fibres of the reflex nervous system located in or on the skin surface with the cool environment stimulate the breathing centre and the child takes its first breath.

The physician often makes use of this reflex when the new-born child delays its breathing, by dashing cold water in its face or on its skin. If the child is not already dead it will almost immediately breathe, showing how powerfully cold contact, whether of air or water, does stimulate the breathing centre.

Without that first breath the heart would soon cease to beat, the blood would not circulate and no other function of the body would be performed. That environment-stimulated first breath is the factor deciding the issue between a living and a dead child.

But, even after the child breathes and all body functions have been established as a result of beginning to breathe, cover the skin with an impervious coating, as of paint, and the child will soon cease to breathe, and, therefore, cease to live. So important is the skin that even life depends upon it.

At the risk of being tedious I have added these remarks to those already presented in chapters thirteen and fourteen, because it is of the utmost importance that the relation of the skin to human health and vital resistance be well understood by those who would become and remain immune from disease.

And now that we do understand how vital an organ the skin is, and that nature intended it to be uncovered and unprotected from contact with the environment, what are we going to do about it? Go naked and live out of doors? No.

But we must do something about it, something that will compensate the failure to do what nature intended that we shall do, something to compensate the interference with and the consequent destruction of function which must result from impeding it by wearing clothes.

Fortunately there is more than one aspect to the law of physiological or functional development, which we express when we say that all normal cells, organs or body parts increase in functional power the more they exercise their function, up to but never beyond that point where exhaustion begins. We will better understand this when we consider another very important and more familiar set of body organs, their function and well-understood means of development.

Every reader must be familiar with the fact that to build a splendid set of voluntary muscles—the ordinary skeletal muscles as legs, arms, etc.—we must exercise them. But every reader also knows that it is not necessary that we exercise those muscles continually. It is only necessary that the muscles be exercised regularly, at intervals close enough together that the value of one exercise shall not have worn away before the next exercise shall have been taken, so that the effect of all the exercises taken shall be cumulative. And if the muscles are to be built to the limit of their possible development, then they must be exercised to their full physiological limit—that point where exhaustion is about to set in.

Equally familiar is the fact that to have good running wind it is not necessary to run *all* the time.

Both perfect muscles and perfect wind can be developed by exercising the muscles or running to the point of tiredness and shortness of breath at least once a day.

Gradually the size and power of the muscles will improve; gradually the ability to run long distances will develop; the muscular function, and the circulatory function upon which the long-breathing power largely depends, all growing more competent together, in accordance with the law of improvement in functioning power through use.

So it is with the defensive functions of the skin and its appendages. They can all be kept at a high degree of perfection in functioning power by systematically exposing the nude skin to its normal environmental contacts at frequent intervals, say once a day, at the least; which I have found to be ample. The longer such exposure lasts, the more frequent and the more nearly it comes to out-of-doors exposure, the more nearly normal will the skin functions become, and, with them, the defensive functions which guard the body against environmental stress.

I shall postpone the discussion of method, that is the way in which the skin defensive functions may be most easily trained by being used, while living in civilization, until I have discussed the other reflex chains that make up the entire human Defensive Mechanism, that Mechanism given to us by our All-Wise and Perfect Creator in order that man, His perfect creation, may—but not must—be always well.

CHAPTER TWENTY

THE NECESSITY OF NATURAL STIMULI FOR PERFECT FUNCTION.

Breathing is the first reflex act of the newborn.

What is its second involuntary, therefore purely reflex, act? Muscular exercise.

The first thing that a new-born babe does, after breathing, is to cry. And crying is a babe's way of taking physical exercise. Watch an infant crying and note its vigorous arm and leg motions and its chest and abdominal movements. These are all accomplished by muscular contractions, and to contract is the function of muscle.

But it must never be forgotten that to move the limbs is not the only result of muscular contractions, although that may be, in the strictest sense, the chief function.

As breathing is a primary reflex act that is the first of a chain of reflex functions, none of which would be performed if breathing did not take place, so is muscular contraction a similar primary reflex act, the first of a chain of reflex functions, none of which would occur, or, at least, none of which would be fully normal, that is, as nature intended them to be, if muscular contractions did not occur.

Like all functions, the muscular contractile function is improved by vigorously functioning. The greater the functional effort, that is, the greater the muscular effort or work, up to the point when exhaustion begins, the greater the potential muscular power that is developed.

But the result of vigorous muscular effort does not end with the development of the muscles. Every function in the chain of reflexes, initiated, directed or controlled by muscular contractions, is also increased in functional power.

What are these functions? I cannot name them all, for I do not, and no one else can, know them all. But I can name some vitally important ones. And these will serve to demonstrate the intimacy of the interrelations of all body functions through the ramifications of the sympathetic or reflex nervous mechanism to which I have frequently referred.

The first of these is the respiratory or breathing reflex, by which breathing is increased in proportions equivalent to the increase in muscular effort. A second is the circulatory mechanism, the heart and bloodvessels. The heart increases its beat, both in force and frequency, in proportion equivalent to the increase of muscular effort. And just as the voluntary muscles gain in strength and size by work, so does the heart muscle gain in working power, and in the same proportion. And, by the same token, just as the voluntary muscles lose in power by failing to exercise, so does the heart muscle, although more tardily.

But if the heart were to gain in functional power, that is, grow stronger, and at the same time the bloodvessels did not simultaneously gain in functional power, the result would be disaster for the bloodvessels. When the heart increases in power it means that the voluntary muscles of the body are being vigorously exercised; and this calls for more blood to bring to them the nutrition and energy they need and to carry away the parts of themselves broken down by their effort. This means greater activity upon the part of the expansile and contractile elastic walls of the bloodvessels. For it must be borne in mind that just to form a channel through which the blood is forced by the heart is not the only function of the bloodvessels. They are intended to aid the heart in forcing the blood through themselves. When the heart chambers close upon a chamberful of blood and send it out into the bloodvessels, the vessels must enlarge their capacity, by stretching, to contain it. That is why they have elastic walls. But when the heart opens to be refilled, the elastic artery walls contract upon their contained blood, and this forces the blood along in a continuous flow into the capillaries and veins. The more vigorous the heart works, then, the more the arteries have to work. Like the functional power of the heart muscle and the voluntary muscles, this functional power of the bloodvessels is increased by functioning, up to, but never beyond, the point of beginning exhaustion.

A third of these functions is glandular secretion. The increased muscular work causes deeper and quicker breathing. This increases the amount of oxygen in the blood. And we have already seen that the blood circulates more rapidly. The function of the glands is to extract or secrete substances from the blood for use in other parts of the body. More blood carrying more oxygen to the glands increases their secretion. Like the other organs, their secretory functioning power is increased by this increased functioning, up to, but not beyond, the point where exhaustion begins. Glandular secretions floating in the blood, or lymph, contact other organs, cells or parts which it is their function to stimulate to do some totally different work, and these organs are forced to increase their functional activity, and, like the other organs, increase their functional power. But the gland products resulting from this last-mentioned functional effort again stimulate increased function and also increased functional power in other organs, and in the same way, and these again in others. And so it goes around the entire circle of functions, initiated or increased by the primary stimulation inhering in voluntary muscular exercise.

And as breathing and active voluntary muscular contractions are primary reflex acts initiating or increasing other reflex functions, and also increasing functional power in other organs, so also are natural sleep and *natural food* other primary reflex acts, initiating and increasing in power the whole chains of reflex functions.

Please note, I said "natural food."

True enough, unnatural or denatured foods will set up a chain of reflex acts, but they will be abnormally stimulated reflexes, and the functions controlled by them cannot be normal. They tend to be destroyed.

When a child is born, it first breathes, then it exercises, then it sleeps, then it feeds. A little later its mentality awakes, and its emotions begin to play a large part in initiating and controlling functions. These, I call the five Primary Reflex Generating Centres of the human body, since they each initiate a chain of reflex acts.

And, if they are unhampered in their operations by being allowed to contact their natural stimuli, they will initiate and perfect all the functions of the body that are required to build a perfect body and maintain it in perfect health, immune from disease.

But all the factors entering into the initiation and operation of these primary reflex acts must be present, or they will be hampered in their power to induce the normal chain of reflex functions that their normal activity is intended to induce.

For instance, the food must be "natural" food. Everyone is familiar with the fact that the natural food of a human infant is its mother's milk. And everyone is equally familiar with the fact that no other food will set up in the infant a chain of perfectly normal functions. The high mortality in artificially-fed infants as compared with naturally-fed infants is sufficient proof. The breast-fed child rests better, sleeps better, plays better, grows better; all of which are the result of nerve reflexes initiated by the use of "natural" food.

But the infant only illustrates the existence of the natural law that relates the normal or abnormal state of an animal's body to its food, a law which is universally applicable to every species and to every age.

So does the infant only illustrate the existence of the law of nature that relates the normal or abnormal state of an animal's body, regardless of its age, to its primary reflexes, that is to say, its skin, muscle, sleep, food and mental or emotional reflexes. If its skin functions, its muscle functions, its slumber, its feeding, and its emotional reflex functions are all kept up to full functional power, then the entire interlocking chains of bodily functions, which depend upon these primary reflexes to operate them, must be normal, and the animal's body must be normal, *i.e.,* in perfect health, free from and immune to disease.

Again we come back to nature, for only contacts with natural stimuli can keep these primary reflexes normal.

How, then, are we to maintain these natural reflex contacts and still remain in artificial civilization?

The correct answer to this question is the fingerboard pointing the way to our destination, Permanent Health.

CHAPTER TWENTY-ONE

EFFORT, NOT EASE, IS THE LAW OF ALL DEVELOPMENT

There are those who, after reading the foregoing chapters, are apt to think that the way to the destination, Permanent Health, is a hard and thorny way. And it will prove so to the coddled individual for a time; but only for a time. And practically everyone in civilization is subject to the coddling habit, for practically all civilized people have lived as they have *wished* rather than as they *ought*. Even this would not be so bad were it not that most civilized people have long believed that civilization is identical with physical ease, physical comfort, absence of effort, and general luxury; therefore, the more of these we have the better, and, naturally, they have studied to obtain effortless physical ease.

These people have not realized that those things are not the essentials, but the excrescences, or unnatural outgrowths, of civilization. As well might one believe that drunkenness and prostitution are identical with civilization, because they are always present in civilization, an outgrowth of the same tendency to consider what we *like* to do, and give little or no consideration to what we *ought to* do, at least in a physical way. Care for our bodies has thus seemed to the unthinking to mean feeding them what and as much as we like, and exercising them as little as possible.

Had civilized peoples realized from the outset that effort is the law of growth, that it is only putting forth strength that can beget strength, that it is only by resisting that our bodies can learn to resist; and, conversely, that by yielding up to physical ease the human body becomes a physically yielding, therefore, a degenerating body,—it is almost certain that the habits of the civilized peoples would have developed differently, and the resulting mental and spiritual attainments of our race would have been such that, what we now regard as advanced civilization, would appear by contrast as almost savagery.

The only reason why it will appear as a hard and thorny way to the destination, Permanent Health, is that it entails a change of habits. Once the new habits are established along natural lines, however, the traveller will begin to realize that the hard and thorny way is the way of unnatural living, that has been traded off for the newer, natural way of living, leading straight to his longed-for destination.

In the preceding chapter I stated that if the primary skin, muscle, sleep, food and mental or emotional reflexes of the body are kept normal, the body must be normal, and, therefore, in perfect health; but that it is only contacts with their natural stimuli that can keep these reflexes normal. I have said elsewhere, that it is unnecessary to return to the savage or wild state in order that our sensitive reflex terminals in the skin may contact the natural environmental stimuli existing in the wind, sun's rays, rain, fog, dew, heat, cold, the earth itself, and natural foods. These can all be achieved while living in civilization. This is because nature has endowed us with a superabundance of functional vitality and thus it becomes possible for us to maintain a perfect physical state by meeting nature only half way.

But we have now come to the point where we have to decide what to do. The first decision we must make is that we will, or we will not, change our living habits to insure the boon of Permanent Health. If the decision is against learning new living habits, then it will be useless to read further. Go on as you are so far as your inherited vitality will carry you, and then congratulate yourself upon your decision when the inevitable break comes, if you can. For, it is bound to come sooner than it need, if you are living the conventional civilized life dominated by unnatural living habits.

If your decision is that you will change your living habits to those that will compensate by their approach to naturalness for such departures from natural living as are made absolutely necessary by living in civilization, then come along with me and I shall lead you in the way to the destination, Permanent Health. That is, I shall do so unless you are already such a physical cripple that travelling far over any road has already become impossible.

I think the best way by which I can do this is to outline briefly my own daily health regimen, through the operation of which I regained my own health, and rejuvenated my own body at fifty-two, already old and growing decrepit at that age, and for several years previous to that age. A man is decrepit and old when his blood pressure reaches 212, and remains there, regardless of the years he has lived.

So completely have I regained my health, that I have not had even a cold for over a dozen years, although I was previously almost a constant victim. Moreover, I can work eighty to ninety hours a week at the highest possible pitch of effort, carrying on several kinds of activity, mental and physical; walk 250 miles a month and actually never feel tired, my body being practically untouched by ache or pain.

At seventy-five my mind is clear, more facile and capable and elastic than at any period of my life. I have no backward look towards the past as the best period of my life, but look forward to the future with anticipation of greater things to do and with more certainty of accomplishment than I have ever had. Mine is the mental attitude of youth, and I am really youthful. I have a better chance to reach one hundred than the average youth of thirty, who lives the conventional civilized life, has to reach sixty.

This is my first book, and the manuscript of it—not the typescript—has been written on the Saturday afternoons and in the evenings of ten weeks, the days having been spent in strenuous work, perhaps more strenuous than the average young man would be willing to do, with his summer holidays, evenings and Saturday afternoons in which to recreate his strength. And I never have any holidays.

I have had no holiday since 1917, unless I count as holidays the nineteen-day bicycle trip I took in May, 1924. But this was the most strenuous undertaking of my life. It was a contest undertaken to test my physical endurance, and entered upon as a result of a challenge from a young man thirty years my junior.

This young man had himself given some study to diet, and he was quite certain that upon my diet I could not develop either endurance or "pep," but especially endurance. Commencing with a jest, a serious contest was finally arranged to test my endurance. We were to bicycle from Toronto to Montreal, then as much farther as we might decide between us. He was to set the pace. If I could follow I won the contest. If not, I lost.

He ate the conventional diet of civilized peoples: meat, white bread, eggs, bacon, marmalade, jams, etc. I ate Roman Meal, fruits (raisins, prunes, figs, dates), vegetables (cabbage, sauerkraut, baked beans), milk.

We reached Montreal in four and a half days, each carrying fifty pounds of camp equipment, etc. We returned through Northern and Central New York, *via* Rochester, Buffalo, Niagara Falls and Hamilton to Toronto. We slept out all of those nineteen nights but one, in the cold wet spring of 1924, often wet to the skin.

I not only kept up to my young companion, but over the hills around Watertown, N.Y., actually ran away from him, causing the only unpleasantness of our entire trip. He was so angered that I should make of the contest "a trial of brute strength" that when he arrived at Watertown, where I awaited him until chilled to the bone, he actually went so far as to go to the railway station to take the train for home, but thought better of it, and continued on with me to the end.

So strenuous had been the day for him, that he was sick all night, all the next day and the next night—so sick that we were only able to make eighteen miles, instead of our usual seventy to seventy-five miles daily.

He finally adopted my diet and we rode the distance from Rochester, N.Y., to Toronto in two and a half days, a distance of 225 miles. We made the ride from Rochester to Buffalo in one day, a distance of ninety miles, against a violent head wind and on a holiday. And he who has ever bicycled on the motor-thronged American highways, on a

1300 miles in 19 days with a 50-lb. load of equipment holiday, will know what we were up against. Heavily laden bicycles, thronged highways, wind so strong head on that often we were forced to the speed of a slow walk, make strenuous going, yet we made ninety miles. We then completed our run to Toronto in one and a half days, arriving home exactly at noon, June 1st, nineteen days out, during which we covered 1300 miles.

Let me say that my competitor was a former bicycle racer in England, that he had never ceased to ride a wheel; that I had not ridden a wheel for over thirty years, that I had only ridden ninety-seven miles about Toronto in preparation for the contest, and that I completed our contest upon a second-hand bicycle for which I paid $22.00.

Let me say, too, I never was so fit in my life as when I returned, and I have inserted a photo taken on my return as evidence of that fitness (*facing this page*). As a tribute to my companion's good sportsmanship, I must say he was generous enough to admit I had won "hands down."

Now this young man was thirty-five and I was sixty-five. He was of the long, slender, lithe, red-haired, gray-eyed, tireless type. He was a practised cyclist, thirty pounds lighter, thirty years younger. *Why did he not win?* The answer is, largely food—natural food—and a natural living regimen. His food consumed his energy. Mine imparted energy. His food intoxicated or poisoned his tissues, loaded them with fatigue poisons and *devitalized them.* Mine energized and sustained my tissues and *vitalized* them.

I am inclined to be as good a sport as he was and I, therefore, am of the belief that if he had used my diet he would have run away from me.

Now, I do not tell these things in any spirit of boastfulness or vaingloriousness. I tell them only as an evidence of what may be accomplished by anyone whose organs are not so far diseased as to be beyond the possibility of recovery by natural means.

I tell these things as an encouragement to others to steel the will to make the effort necessary to form new and natural living habits, since it is only by natural living that our way to Permanent Health can be won. But I am proud too, in telling these things, for it is not so many years since the great Sir William Osler and two other internationally-known physicians consigned me to the scrap heap, to die inside of four months, because my blood pressure stood at 212 and my heart beats were "chaotic"; they had lost all resemblance to the normal heart rhythm. I was seriously advised to be always prepared for the end. Yet within four years, after I had studied out the normalizing health regimen which I am about to describe, I climbed the fifty flights of stairs in the Washington Monument: the only one of twelve who attempted it to go above the eighteenth floor, and I was five years the oldest of any of the twelve, two of them being under thirty. I also walked down. And this on a hot and humid day, the 4th of July—in hot and humid Washington.

I tell these things in the hope that if, to the faint-hearted, the change of habits seems hard, the results may seem a sufficient recompense. And I can, from an abundant and thrilled experience with both the effort and its results, enthusiastically testify—indeed they are!

Let me say that my physicians were fully justified in their gloomy prognosis upon the ground of family history alone; for my father was one of a family of twelve children, all but one of whom died of heart disease: my father at the age of forty-three, the oldest of any of the family at the time of dying; and I have one sister and one brother dead of heart disease. For this reason, I fully agreed with their prognosis. Judged by all the canons of medical art, I was doomed. But I was to learn that there is a way, often for the most hopelessly decrepit, to the destination, Permanent Health, which medical art has not—yet—sufficiently taken into account. That way is the way of nature.

CHAPTER TWENTY-TWO

AN INCIDENT THAT STARTED ME THINKING.

Let me take a few paragraphs to relate the interesting incident which eventuated in rousing me to do my own thinking, and thus to think my way out of the quagmire of disease, with its constant threat of impending death, and my eventual arrival at what it appears logical to expect—and what it actually seems to be—a positive immunity from disease.

I had acquired some local reputation as a child's physician, but more especially as a child's dietitian.

A young and wealthy mother, beautiful, and as frivolous as she was both wealthy and beautiful, presented herself at my office one day accompanied by a trained nurse carrying a baby, certainly the most woebegone, marasmic specimen of a baby I have ever laid eyes on. The mother was college-trained and as bright as she was "light" and beautiful.

In my efforts to reassure the mother, I made the statement that she need not worry, since all an infant needed was that its food be adapted to its power of digestion, absorption, assimilation and elimination, and that it be given reasonable hygienic care, and it was certain to grow and develop like a green bay tree.

Turning her amused gaze upon my decrepit form and looking me quizzically over with slow precision, from head to foot, she queried, with a roguish twinkle in her black eyes: "Doctor Jackson, when, in the life of an individual, does that principle cease to work?" Of course, I could not answer her, so I parried the question by saying: "Ask me an easier one."

That seemed to settle the item in so far as she was concerned, and at the expense of my wasted frame she had had her little joke; but it did not settle the matter for me. While

I had parried her question, I could not parry the insistent question of a similar kind, which her question had put into my mind. Try as I would, I could not rid myself of it. All that evening I could think of nothing else. Could it be possible that this principle applied to me and had all through those years during which I had suffered? Could it be possible that if I had not been so ignorant of the wonder-working ways of nature I need not have suffered so? Did God, or nature, intend that we be afflicted with disease? If it were true, really true, and I knew it was, that in the most delicately poised period of human life, babyhood, a human body could be kept always well by simply adapting its foods to its power of digestion, absorption, assimilation and elimination, and giving reasonable attention to hygiene, when did that period in the life of an individual begin that this principle did not apply—and why? Strange that the question had never presented itself to me before. I knew that unless I could answer that question I would not sleep. I sat through the entire night, thinking, thinking, thinking, generally in a circle as I had always done, but often peering cautiously down certain avenues or lanes of unconventional thought that, because I had, as a trained physician, worshipped my conventional authorities, had always remained closed to me; just as they still remain closed to most of my professional brethren, and always will until the authorities put their O.K. upon them.

But conventional medical treatment, that is to say drug treatment, had had its day—yes, its years—with me, at my own hands and the hands of my medical confreres, some of them famous medical authorities. And I, in what ought to be middle life, a mere remnant of a man, compelled to live upon the ground floor and advised by the best medical opinion to be always prepared for the end—I was the result of that treatment.

During that long night my words of intended comfort to the woman continually recurred to me: "Feed a child according to its powers of digestion, absorption, assimilation and elimination, and give it reasonable hygienic care, and it will grow and flourish like a green bay tree," always to be followed by the woman's query: "When, in the life of any individual, does that principle cease to work?" And invariably I saw the black, roguish eyes searching me from head to feet, until I began to feel shame for the miserable form towards which I had always, until then, maintained the attitude of pity.

I had begun to see, or at least suspect, that God had not intended me to have the miserable form that I had pitied. I recalled that in my youthful years He had given me a splendid body. I began to realize for the first time that I had never in my life given thought to, or sought the knowledge, how I ought to treat that splendid body, knowledge that I soon saw was easily ascertainable from a study of the open book of nature. I now realized that I had always treated my body only as I had wished or fancied, or as the merest whim directed, my whims being the general whims of civilization, created by the whims of others who do not think. The result, I now saw, was what one ought to expect.

Whims generally run counter to nature. And running counter to nature can bring but one result—and I *had* that result. And when it is attempted to correct that result without eliminating the whims that are its cause and realigning the body with nature, attempted, in short, to correct the results of some unnatural habits with some equally unnatural means, that can also have but an unnatural result. I *was* that result.

Well, the decision reached in the long vigil of that night was that if nature could not help me I was past help.

Forthwith, I began to study and investigate the open book of nature.

What I learned is outlined in "Basic Principles," as laid down in the first part of this book, which the reader is urged to re-read before going on.

CHAPTER TWENTY-THREE

MY OWN DAILY "EFFORT" THAT MEANS THE "DEVELOPMENT" OF BODILY PERFECTION.

In this chapter it is my aim to outline, without reasons therefor, my own daily regimen, to which I am as devoted as is the Mahomedan to his "mosque."

I shall only ask the reader to remember, while reading, that nature intended us to live out of doors, our nude bodies contacting the wind, sun's rays, rain, fog, dew, heat, cold and the earth itself; to exercise very freely and, therefore, to sweat profusely and breathe deeply; to sleep regularly and naturally in contact with out-of-doors air, following exercise sufficient to well exercise the voluntary muscles; to feed upon the unchanged foodstuffs of nature; and, lastly, to control the mind and the emotions flowing from mind, thus constructively controlling the influences of mental and emotional operations upon cellular or bodily functions. The reasons for the regimen I follow are supplied in their proper place.

In connection with the reasons, however, I shall ask the reader to remember that the voluntary muscles can be developed in their utmost symmetry and perfection by fully exercising them for only a short period each day, and that the brain becomes more capable of thinking by thinking as deeply as it is capable of thinking for a short time each day; so also, by regularly and fully exercising them, all other body functions can be developed to and maintained at full functional power. *Keep this principle well in mind.*

Finally I shall ask the reader to try to understand that if the civilized human body is to develop physical perfection and maintain it, and, therefore, attain to a natural immunity from disease, we must either become primitive men again, and thus return to primitive living habits, or we must remain in civilization and, by some other means, compensate the departures from natural or primitive living habits made necessary by living in civilization.

My daily regimen:—

I sleep in an unheated room-(unheated at night), year round, windows open top and bottom, bed screened from draft, and wear no night clothes (pyjamas or nightshirt), but always sufficient bed coverings to keep me comfortable. Early morning I throw bed coverings over foot of bed and exercise for a half hour lying on the bed nude, windows still open, as they have been all night, regardless of temperature. Of course, in below zero weather I do not open windows so widely as in more temperate weather, but always they are open top and bottom. After bed exercises I retire to bathroom, open window when it is not frozen too hard to be opened; drink one glass of water, hot or cold as suits fancy; respond to nature's calls; cleanse teeth and drink a second glass of water; shave, wash, take a second set of exercises standing, designed to exercise fully all the muscles of the body, but especially those about the waist and abdomen; follow with quick, cold bath, taken as follows: Soap well neck to toes; scrub with well-wrung-out washcloth; wash off soap with sopping washcloth; immerse body quickly for a few seconds, rapidly rotating the body with a side-to-side rocking movement while immersed; sit up in tub and rapidly friction the legs from hips to toes while in water; stand in tub, wring washcloth into a tight roll and grasp it firmly with both hands, arms fully extended straight forward from shoulders, hands close together, palms down: make very rapid striking movements with both hands, simultaneously moving the whole body by bringing the hip and knee joints into rhythmic movements with the striking movements of the arms and hands, one hundred times; take four to six deep breaths, exhaling through the compressed lips, and simultaneously raising the arms outward from the sides until they meet overhead during the inhalation, and lowering them during the exhalation; same position, snap arms sharply to one side, six to ten inches, then as sharply in the opposite direction, oscillating very fast one hundred times; repeat deep breathing.

I then rub my body well with wrung-out washcloth; leave tub and allow body to dry in air or wind through open window while with closed fists I pommel myself from scalp to toes; follow with a quick palmer rub over the entire body that can be reached. Regardless of room temperature, I am now glowingly warm and completely thrilled. I dress without underwear, winter or summer; retire to sleeping room and complete toilet; begin a five-mile walk wearing no underwear, vest, nor overcoat in the coldest weather; in summer as few clothes as the conventions and the law allow. Then I breakfast on fruit and half-and-half* or Kofy-Sub† (apples, oranges, and grapefruit or the sweet fruits—especially in winter—dates, raisins, figs prunes, or any fruits in season). Lunch is a large bowl of granulated whole-meal porridge (Roman Meal‡), with milk; or Roman Meal bread with butter, honey (my only sweet with the exception of sweet fruits), and milk to drink; and a large leafy salad with onions, radishes or tomatoes in their season. Dinner is almost always a large salad, as above, cheese, cottage cheese, baked beans, nuts or nut-butter. Frequently, in winter, I add steamed vegetables, served only with butter and a little salt. In summer, dinner may be only berries and milk. In winter, if I feel I have over-indulged in food, I may make a dinner of sweet fruits and milk, or nuts and raisins and a cup of Kofy-Sub. I eat no desserts, unless it be a few dates or raisins.

Occasionally, I live for one or more entire days upon juicy fruits alone, or juicy fruits and half-and-half, to rest and cleanse the digestive tract and the blood, and change the intestinal flora.

My body is abundantly supplied with building and repair material by the Roman Meal, beans, cheese, nuts, milk; none of which quickly decomposes and poisons like meat or fish. The abundant alkalis in the leafy vegetables and fruits fully counteract the products of fermentation; the fruit fast kills or controls the bacteria of putrefaction; the two keep my blood normally alkaline and clean, my tissues non-acid and my organs unstrained. My body is more resilient than any acid-food-nourished youths' bodies can be, and I work incessantly, walking ten miles a day in addition, at seventy-five, and never, never tire.

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*Half milk and half boiling water.

†Kofy-Sub is now on the market (see page 165).

‡Roman Meal is sold in the United States only under the name of Dr. Jackson Meal (see footnote page 327).

Could I do these things, in continual activity from 5.30 a.m. to 10.30 p.m., with never a single holiday in the year—year after year—and never a day's complaining, or sickness, living upon the standard diet of civilization—meat; white bread; peeled and boiled potatoes; small quantities of vegetables soaked, boiled in water alkalinized with baking soda and then drained, or boiled in salted water and drained; flour gravy; pickles; hot bread made from white flour; cakes; pastry; condiments (mustard, pepper, chili sauce, Worcester sauce and other relishes), tea; coffee; and, between meals, all sorts of soda-fountain concoctions and no end of cigarettes or tobacco in some other form; wearing clothing so heavy that never a gleam of the rays from the sun can reach my skin or a touch of the sun-vitalized air; or riding to my office in my car, or a street car; climbing stairs in an elevator; sitting in a swivel chair and touching a button for every item in connection with my work to be placed in my hands; riding home again in my car, then eating a "good meal" and after a game of bridge and several good cigars retire to a disturbed sleep or a sleep so heavy, from retained body and food poisons, that I cannot be roused easily in the morning and often am not really roused all day; if I take hot baths in a steamy, stuffy, breathless bathroom; have infrequent bowel evacuations in spite of the consumption of so much easily putrefying food; then at the week end take a vile cathartic to still further wreck the bowel function?

Could I? Well, I tried it for years and only succeeded in almost killing myself; and everyone, regardless of his apparent health, who leads that kind of a living regimen will die years and years before he need die, even he who by chance of a unique heredity lives a century. Such hardy men might easily live to be 150 if they lived biological lives, and still be competent and useful to the end.

By changing over from that unnatural style of living to the unconventional and simple living habits that I have described, I have come to be, in the years that men call "old age," a virile man with all the physical vitality of youth, and far more of that vitality than have most of the luxury-loving, ease-taking youths of to-day.

In winter bathing, it will be sufficient to soap the body only twice, or even once a week, except in the folds of the skin where odors might develop. In the coldest weather, I follow the twice-a-week plan.

(It is also sufficient at all times to take a shower bath, or to stand in tub and wash the entire body over well with a wash-cloth, then slush the body with the cold water from the running faucet. Many of low vitality must be content at first to only use the sponge bath, at first lukewarm.)

CHAPTER TWENTY-FOUR

TO DEVELOP A RESISTANT BODY THE BODY MUST BE MADE TO RESIST.

Why do I do the so-unconventional things outlined in the previous chapter? To that question I might return a Hibernian answer by asking another question; and that question might be: wouldn't you if you had been a broken-down wreck of a man for years, having been given only four short months to live, and you found that the unconventional living habits outlined not only restored you to the utmost perfection of physical and mental health, but kept you, at the age of seventy-five, in so-generally-vital a state that you feel like turning somersaults all the time? And that would be a good answer for the average man, for the average man is not concerned with the reasons why a thing will work; all he requires to know is that it will work.

But there are others who not only wish to know that a thing will work, but why it will work. And these are the most worth-while minds, for if they once know the why they will not be content to say, if they do not get results in their own case, "It's all rot," but that there must be something wrong with their technique, with the way they carried it out. Such will try and try again until they are rewarded with success. They're worth while. To that type of my readers I now address myself.

I might say to that type of reader, and let it go at that, but I won't, that by these methods I give my Defensive Mechanism something to defend my body against, thus I exercise it quite fully, and by exercising it I make it fulfill the physiological law, that functions improve in functioning power by functioning—the more they function or work, up to that point where exhaustion begins, the more they improve in functional power. By making my body defend itself against these strains I make it capable of defending itself against all strains.

To come to particulars. When I sleep without nightclothes, I do as my primitive ancestors must have done. But I do more than that. I give my skin a better chance to breathe, to take oxygen into my blood and to take poisonous carbon dioxide out of my blood and then to get rid of the poisonous exhalations so that I do not re-breathe them. But I also make my skin and its appendages defend my body to some extent against environmental stress, especially if the weather is cold, as my primitive ancestors were defended by their skins before they invented clothes. When I arise in the night, as I often have to do because of the water I drink and the fruit and vegetables I eat, and especially when the weather is cold and the skin glands less active, even when the weather is twenty degrees below zero, the windows open and the room unheated, my skin and its appendages are the only protection I have against the cold.

When I throw back the bed covers in the early morning to take my bed exercises, my skin is the only defense I have against the cold; and the same is true when I retire to the bathroom, where I spend an hour or more nude, with the windows open for the entire time, except in the very severest weather, when I may not open them until I am ready for my exercise and bath. Thus I make my skin and its appendages do for my body what it was designed to do, defend it against the environmental stress present in environmental cold, just as my ancestors must have done; and, because I make it so defend me, it is capable of defending me just as the skin covering their bodies defended them. In other words, I increase the defensive functioning power of the skin by making it function, fulfilling the law that all organs increase in functioning power the more they function, up to the point where exhaustion is about to set in.

But I do far more than this. By normalizing the functional activity of the skin through allowing it to contact its natural stimuli, I also tend to normalize the whole circle of body functions, because all the body functions are interrelated through the ramifications of the reflex nervous system.

YES, SIR! Always fit. The rich result of a balanced food and normal exercise. Yes, it's worth a lot.

NOTE the absence of fat, yet size of the neck, shoulder, arms, the muscular bulge back of arm, the depth of chest.

NOTE the muscular development of shoulders and arms, chest and abdomen. Instantly ready for any muscular demand.

When I take a cold bath I do for my skin and its sensitive reflex terminals and other appendages what contact with the rain, fog, dew did for that portion of the Defensive Mechanism of my primitive forebears, who lived out of doors nude; thus I manage to compensate my failure to allow my nude skin to contact those natural stimuli that are part of my physical environment. But I also stimulate a whole chain of other reflex functions when I stimulate the skin Reflex Mechanism, and through this chain I stimulate activity in all the reflex functions of the body, through the interrelations already referred to.

In addition to cold air and cold water contacts, I allow my body to contact directly the light rays from the sun, when I allow the uninterrupted rays of light to fall directly upon my skin through the wide-open window.

By all of these contacts, stimulating my reflex functions, as they do, so long as I do not carry exposure to the point of oncoming exhaustion, I am of necessity increasing my store of vital force; and vital force is only another name for resistance against all extrinsic or intrinsic influences which tend to disintegrate the body, or render it diseased.

I am constantly asked: "How do you stand the cold on your skin, I'd think you would freeze; isn't it terrible when the cold air strikes on the skin?" My answer always has to be: "No, it is not terrible and it is not disagreeable. On the other hand, it is generally quite pleasing, even thrilling. I have often risen out of a cold bath and placed my wet body directly before the window through which the north wind was blowing, when the thermometer was below zero —as much as 18°—and the cold outside so great that, in spite of the fact that the bathroom would have been considered, by the pampered, very cold, there was a vast cloud of vapor forming at the window where the outer and inner air met, yet my body was thrilled by the contact."

In a previous chapter, I described the anatomy of the skin and its appendages in a very cursory manner, the mechanism that nature gave to our primitive ancestors for their protection against environmental stress due to sudden or extreme climatic changes. Without such a mechanism to defend them against such environmental changes as wind, rain, fog, dew, heat, cold, etc., they would have died during the first rain or hail or windstorm, or during the first variation of a few degrees in the temperature, up or down: *And there never could have been evolved a human race.*

Because our ancestors were subject to a constantly varying environment and had no other means to defend themselves against the environmental variations, their environmental Defensive Mechanism was as constantly called upon to defend them; that is it was called upon to function—work—up to the full limit of its functional power. And we know that such exercise is the one and only way in which organs or functions can gain and maintain full normal functioning or working power. We know, too, that such organs or functions as do not so exercise their functions tend to be destroyed. These laws are universal and eternal, therefore they apply as well to me now as they did to my primitive ancestors. My thrill is my reward for obedience to the natural law originating in the age-old racial habit of living in the nude.

You see now why it is that I do not feel the cold contact with my skin and why it is that I am thrilled by the contact of the cold north wind upon my wet skin. Like the Indian, *"Me all face."*

The reader will know, if he is not a neurotic altogether, that there is a thrill in muscular exercise that starts the blood coursing through the body and brings oxygen into it in exchange for poisonous gases, if that exercise is held to the point where it does not become too tiring, or does not pass the point of tiredness. That thrill is physiological. It springs from the carrying out of the muscular function, that work which nature intended the muscles to do. The thrill is their reward for work well done.

Well, the skin was intended by nature to contact the environment and it is anatomically constructed to protect us from those contacts. It is the work or function of the skin to defend the body against stress from the environmental contacts, and those same environmental contacts are the natural stimuli which set the Defensive Mechanism—the skin and its appendages—to work, make it function.

And, as with the muscles, the thrill that I receive from the cold contact of both air and water with the skin is the reward that springs always from proper functioning. It makes no difference what the organ is. Let it be the bowel. Is there any one who does not know the thrill that follows a complete natural emptying of that organ?

Now the conventions, as well as the exigencies, of civilized living, make it all but impossible for me to regularly expose my nude body to the wind, rain, fog, dew, etc. Therefore, that part of my Defensive Mechanism is constantly impeded and interfered with—constantly under-used, if not unused. Yet that Defensive Mechanism is subject to the law of nature just referred to. Nature tends to destroy it unless I do something to compensate the interference with that Defensive Mechanism which civilized living habits entail. Thus my body is sure to lose its power to defend itself against environmental stress arising from environmental changes. The first sudden change in temperature, the first high, cold wind, the first time I am wet to the skin or get my feet wet, the first time I am exposed to a draft I have a cold. Nor is that the worst that often happens, as I shall try to show; disagreeable and disgusting as colds are.

I have pointed out that every cell of the body is related to the skin and to the environment, through the sensitive contact terminals of the reflex nervous system located in or on the skin surface and the intercommunications and interrelations of that system. Therefore, every cell of the entire body has a natural part in the body's Defensive Mechanism. When the function of that Defensive Mechanism has been more or less destroyed by civilization's habits of coddling and protecting the body, the defensive power of the cells and organs must also be more or less destroyed. Expressed in another way, the component cells or parts of the body lose vitality or vital resistance; or, expressed in still another way, they lose the power to live, or to resist the attacks of forces that tend to break down the body and destroy it by disease.

Thus it is that a coddled body is apt to suffer some minor ill, say a cold. It does not readily clear up. Then 'flu follows, then pneumonia, pleurisy, tuberculosis; or it may be some other form of violent disease that the completely vitalized body would have thrown off, because a completely vitalized body is immune from disease.

This same principle of body resistance applies equally to every other chain of disease manifestations.

It was this great truth that dawned upon me during my all-night vigil following the young mother's taunt and that changed my attitude of pity for my physical decrepitude to an attitude of contempt and shame for my under-developed and under-vitalized body and for the moron intelligence that had held me in bondage to devitalizing habits through so many, what might have been so wonderful, years, those of my early manhood when my accomplishment ought to have been at its peak, but instead was nil.

In other words, what I discovered during the vigil of that long night was that I could never hope that my body would develop a natural vital resistance to, a power to defend itself against, those forces which tend to disintegrate and destroy it unless I allowed it to defend itself, any more than my muscles could develop the power to lift weights or do work if they were never called upon to lift weights or do work.

From this discovery and the knowledge that, for countless ages, my ancestors had lived in the open unclothed I got my hint how to proceed.

I knew that the voluntary muscles can be developed to great perfection by the simple process of fully exercising them for one or more short periods each day. To be able to do so must mean that they comply with a natural law; and that must be a natural law governing function. Being so, it must be a general law governing all functions. Since muscles can be developed to such perfection by intermittent but regular training through making them fully exercise their function, so must it be possible to regain and maintain the full functional power of the skin chain of the body's Defensive Mechanism.

It remained to develop a *modus operandi.* The one ultimately developed is the one described in the preceding chapter, particularly the direct exposure of the skin to the cool or cold air; the wearing of no underwear, no nightclothes and as light-weight day clothes as can be tolerated in winter and the lightest weight and least clothing in summer that the law allows; together with cold bathing and frictioning and pommeling the muscles and the skin, with especial emphasis upon exposing it to sun and wind on the bathing beaches in summer.

Naturally, I was careful to begin the use of these various measures very gradually, exposing my skin at first only for a few minutes to the cool air while keeping up a brisk friction and vigorous muscular movements to avoid chill, gradually extending the period. I was as careful in exposing my skin out of doors to the direct rays of the sun in summer. And these careful beginnings are of great importance. We cannot coddle ourselves for years and then immediately reverse the process and go to the other extreme. All under-used functions must be only gradually restored.

I began my daily bathing by taking tepid sponges, then cool sponges, then cold ones. Then I stood in the tub and washed my body all over with a sopping washcloth and using tepid water, later cool and still later with cold water. But I was always very brisk about it, moving fast to maintain a rapid circulation and keep up deep inhalation, thus generating plenty of internal heat. Finally, I got my skin so adjusted that I could enjoy the cold shower or cold tub, and now I can take and enjoy the cold tub as cold as the water comes from Lake Ontario in the dead of winter (although I do not generally take it so cold), then rise from the water and stand with my wet body before an open window when the temperature outside is 20° below zero, and allow the north wind to blow directly over and on my wet body while it dries as I pommel and friction it. Often I have had this thrilling experience. And it is a real thrill, but only to be attempted by one whose environmental Defensive Mechanism, located in the skin, is in perfect functioning order, having been gradually brought to the point of perfection by contacting the natural stimuli to its perfect functioning existing in environmental contacts.

When one has such a highly-perfected Defensive Mechanism that he can enjoy such environmental contacts and so thrill and tingle with vitality following them that he can hardly hold his pace down to a walk, but feels he must run, he is to be envied, for his resistance to environmental stress is then perfect.

And there are few civilized persons of whom this may be truly said.

That seems, however, to be my very happy situation at seventy-five. Environmental strains and stress from sudden changes in the environment or from exposure seem to have no effect upon me. Although once I seemed to always have a cold, and a most disgusting and lingering cold, too, and mighty uncomfortable, with infected sinuses, I now never have one. I had my last cold in England in 1913, in the month of August. Neither do I have aches nor pains of any kind whatsoever. Not even physical tiredness ever seems to touch me, and I work from early morning to late bedtime, practically every day in the year.

You see, as already stated, it is not alone my Defensive Mechanism that is kept normal by allowing it to contact its normal stimuli, but this natural stimulation of the skin reflexes sets up normal action in all the other reflexes of the entire skin chain, and these in turn set up, or tend to, normal activity in all other four reflex chains, thus naturally stimulating all the functions, organs and cells of the body, through the interrelations of the reflex nervous system. All of which I shall more fully explain in the following chapter.

CHAPTER TWENTY-FIVE

SYSTEMATIZED MUSCULAR EXERCISE ESSENTIAL TO PROLONGED YOUTHFUL VIGOR AND LONG DISEASE-FREE LIFE.

Training of the skin reflex chain of the Defensive Mechanism by exposing the skin to direct environmental contacts, as the sun's rays, cool or cold air, cool or cold bathing, are not the only precautions to be taken to ensure perfect physical health. These precautions are vitally important, because the skin is a very large and vital organ, with several very important and vital functions to perform. These several important functions cannot be naturally, therefore perfectly, performed unless the skin can contact directly its natural stimuli obtaining in the environment as wind, sun's rays, rain, fog, dew, heat, cold, the earth itself, etc., or their equivalents in some form of environmental stress.

But the stimulation of skin function or of the skin and its appendages, as the oil and sweat glands with the network of capillaries around their pocket-like terminations in the deeper layers of the skin; the cutaneous and subcutaneous capillaries with their elastic expansile and contractile walls; the arrectores pilorum muscles is but a fragment of the reflex activity that results when the skin is allowed to directly contact the physical environment, especially if it is a cold environment. Direct contact of the sensitive reflex terminals located in or on the skin surface with cold air or cold water causes deep breathing.

Try a sudden dash of cold water on some generally protected part of the skin, when it is nude, and note what happens to the breathing. Deep? I should say it is. And that proves one's skin is the seat of reflexes that, stimulated by cold contacts, make one breathe more deeply. It is for that reason that the physician sprinkles the new-born babe with cold water when it is not inclined to breathe.

That the skin is a very vital organ with very vital functions to perform is proven by the fact that, if covered with an impervious coating, as paint, death almost immediately follows, as was proven by the death of the beautiful, gilded child in the inauguration ceremonies of one of the popes.

But breathing deeply does not end the reflexly-stimulated functions. Breathing deeply increases the oxygen intake by the blood. This increased oxygen intake stimulates the heart to beat with increasing frequency and force. This increases the circulation which now carries more oxygen in greater volumes to the most remote organs and cells, as also to cells forming the heart itself. This increased oxygenation of the blood burns up and destroys all body wastes, all food debris that would otherwise burden the body cells and tend to break them down. The increased heart beat sends more of the oxygen-rich blood into the arteries and this distends or stretches the arterial walls, exercising and advantaging them in a way to be disclosed later in this chapter, as also will be explained the advantages to the body of greater volumes of oxygen-rich blood circulated through the various organs and glands of the body. These are all very important to the health of the body, but the body that would be immune from disease must observe other important precautions to make use of the natural means for the development of a natural immunity, since it is only a natural immunity that is worth while.

In "Basic Principles" I showed that all of the reflex-generating centres must be set in motion by contacting their natural stimuli; the skin chain by the skin directly contacting the environment; the muscle chain by the exercise of the muscle function; the slumber chain by earned and regular sleep; the gastro-intestinal or food chain by the use of natural foods, etc.

It is for this reason that I exercise my voluntary muscles fully to the point of tiredness, but never, if I can avoid it, beyond that point, or at any rate to the point of exhaustion.

Always keep in mind that cardinal law that functional power is promoted in all organs by compelling such organs to regularly function or work, up to the point where real tiredness—but not exhaustion—begins.

Because this law does not apply to just a few muscles or groups of muscles, I systematize my muscular exercises so that every voluntary muscle in the body may be exercised. It is not only that the muscles may be exercised that I make them work. True, muscular work makes bigger, better muscles—stronger and more vital muscles—but it is also true that it does much more. It sets up the entire chain of muscle reflexes referred to in "Basic Principles." When the muscles contract, oxygen is used up in the body and body tissue, body cells, broken down. The harder they work the more oxygen is taken in and the more cells broken down. The more oxygen that is used, the more cells broken down, the more demand for air. The more demand for air the deeper must be the breathing, since this is the only way other than through the skin that oxygen can get into the body. The deeper the breathing, therefore, the more oxygen there is in the blood and also the more the diaphragm and the abdominal and chest muscles are exercised. It is, in fact, the only way in which certain of the chest muscles and the diaphragm can be ever exercised.

Deep breathing is also the only way in which the lungs themselves can be exercised.

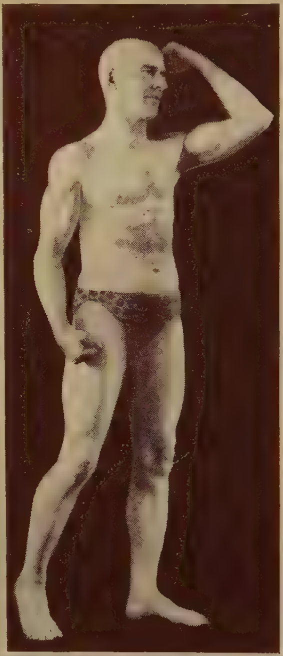
Moreover, the increased excursion of the diaphragm during deep breathing has a most beneficial effect upon the liver, stomach and intestine.

At the same time that the breathing becomes deeper through exercising the voluntary muscles, filling the blood with new volumes of oxygen, the heart is also stimulated to beat faster and harder. The harder the muscles work the deeper becomes the breathing and the more oxygen is taken into the blood and the harder the heart works.

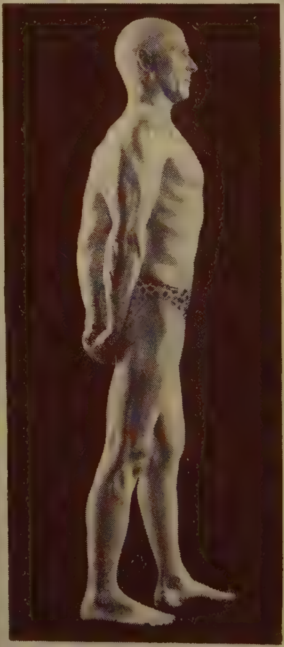
The harder the heart works, if its valves and walls are normal, the more oxygen-rich blood there must be pumped into the arteries. This has two important results. First, there is an increased volume of oxygen-laden blood passed through the organs, glands and all other body parts. Since all the cells of the body are built up out of materials floating in the blood they thus receive a greater supply of building and repair materials. Out of these greater quantities of building materials they are enabled to more perfectly build and rebuild themselves and thus to function more perfectly. But many of the organs are also glands which elaborate secretions or excretions. They find the raw materials for their manufacture floating in the circulating blood, which, being in greater volume and richer in oxygen, enable them to elaborate more of their peculiar secretions or excretions. Moreover, the law of functional growth also applies to these organs and glands; they increase in functional power by the greater functioning effort which they are enabled to put forth. The secretions of some glands are the natural stimuli which cause other glands or organs to function. This enables these second-line glands to elaborate more of their peculiar secretions, which again act as natural stimuli to still other glands or organs; and these again to others and these to still others, until the whole circle of body activities has been reached and stimulated, thus increasing cellular and organic functioning power throughout the body. And this increased functioning power is relayed on and on to other parts of the body by the interrelations of the reflex nervous system, so that the whole result of vigorous physical exercise of the voluntary muscles is to set up a chain of reflex constructive effort within the body that is incalculable in its ultimate beneficent effects in the establishment of that vital resistance which is the only force that can render the body immune from disease.

But the most important body effect that can be traced to muscular exercise is the effect upon the heart and bloodvessels; also the other involuntary muscular structures of the body. The involuntary muscles are in no way under direct control by the will or the intelligence. There is no direct way in which they can be wilfully exercised. Still everyone is aware that the exercise of the voluntary muscles has a beneficial effect upon constipation, yet the muscles of the bowel wall are not voluntary muscles. The fact is that the beneficial effect that results to the voluntary muscles themselves from exercise is reflected over to the involuntary muscles and other involuntary structures, through the interrelating fibres of the reflex nervous system. In the same way the heart and bloodvessels are enormously benefited by exercise of the voluntary muscles.

There are two kinds of muscular work, passive and active.



COMPARE the symmetry, poise and splendid body development shown by these pictures with the same in any young athlete.



NOTE the muscular development of the neck, arms, waist and legs. No "skinny" members here—yet no flabby fat.

As far as the voluntary muscles are concerned, passive work may be understood to be such effort as is expended in sitting about in the home or office, or lolling about in an inactive way, expending no will-directed effort of any kind.

Active muscular work is effort that goes beyond this, effort that is directed and sustained by the will and is such that, if protracted, it will tend to tire the voluntary muscles.

As far as the involuntary muscles are concerned, passive work is such effort as is required to keep the body alive. Applied to the heart and bloodvessels, such is the amount of work these organs are called upon to do when the body is sitting around in the passive state described in the second preceding paragraph.

Active work is done by these organs when the voluntary muscles are exercised beyond the passive stage, and in proportions equalling the active work done by the voluntary muscles. The reader will recall I have already shown that active exercise of the voluntary muscles increases the active work of the heart and arteries in an exact ratio.

It is this increased work upon the part of the heart and arteries that is its active work, and it is active work upon the part of any muscle that constitutes its exercise.

Exercise means increased functional effort; and increased functional effort, inside the point of oncoming exhaustion, increases functioning power—increases the power of an organ to do its work.

Therefore, increased work by the voluntary muscles not only strengthens those muscles themselves, but strengthens the heart and artery muscles as well, because by such means their work is changed from passive to the active type.

Increased activity upon the part of the heart increases activity on the part of the bloodvessel walls and these, too, are muscles. That is, the walls of the bloodvessels are made largely out of muscular fibres. When the heart empties its cavities by contracting down upon the blood with which they are filled, the blood in these cavities must be forced out into the little muscular tubes, the arteries. This extra blood forced into the arteries must be accommodated and the vessels, being elastic, stretch to a larger calibre to hold it. But immediately the heart has to relax to refill its cavities with more blood and the force from the heart's impulse is withdrawn from behind the blood in the arteries, yet the circulation of the blood must not stop for an instant. And the elastic walls that have been stretched now contract back to normal size, thus forcing the blood that has distended them on into the capillaries and veins and back to the lungs and heart. But the arteries have hardly contracted back to their unstretched normal size when another chamberfull of blood is pumped into them by the heart and immediately the arteries have to again stretch to accommodate it; and the same process is repeated over again and again from sixty to one hundred times a minute so long as the body lives.

This process goes on whether the voluntary muscles are being actively worked or not, but when the voluntary muscles are not actively working the force and frequency of the heart beat and the amount of blood thrown into the arteries is less than when actively exercising. When the voluntary muscles put forth will-directed effort of the active kind, the heart must likewise put forth greater effort and thus more blood is pumped into the arteries with faster and more powerful heart beats. When this extra blood is pumped into the arteries, the arteries have to expand to still larger calibre and to expand and contract more frequently to accommodate the increased circulation within them. This active work by the artery walls constitutes their exercise.

Now, I think that almost everyone knows that voluntary muscles that are only being passively worked are not being exercised in the physiological sense and such unexercised muscles tend to be destroyed, as is evidenced by their flabbiness and decrease in size which soon follows idleness. But that is not all that happens to unexercised muscles. They tend to become stiff or rigid, inelastic and non-resilient. The supple muscles are well-exercised muscles. The stiff, yet flabby, muscles are those that get little physiological exercise.

But muscle is muscle and the same thing happens to the involuntary muscles in the heart and bloodvessel walls. When the voluntary muscles are not actively exerting themselves the heart and bloodvessel walls are only passively exerting themselves—they are not being exercised. And because muscles become rigid and stiff or inelastic when not exercised the bloodvessel walls tend to become rigid and inelastic when the body ceases to actively exercise itself. Because they become inelastic they do not expand normally to accommodate the blood forced into them when the heart empties its chambers of blood into them, yet the blood must be passed into them. The result is that the heart puts forth more effort and forces the blood into the artery that will not stretch. This raises the blood pressure within the artery and we have oncoming *high blood pressure.*

Now it is well known that nature does everything possible to repair and restore or compensate any organic tissue decadence taking place within the body. When the heart has leaky valves which allow part of the blood to reflow backwards as the chambers contract to force the blood onwards the heart walls thicken and become stronger to compensate for this loss of efficiency. She does the same in the case of the arteries when they become inelastic from lack of regular physiological exercise. The increased force of the heart throwing its blood into the inelastic arteries throws a great strain upon the artery walls. Nature comes to their support and soon thickens the artery walls by laying down new tissue in the artery walls to thicken them. But it is a different kind of material, it will not stretch but has rather a tendency to contract. While this makes the artery walls stronger, it also makes them more rigid and inelastic and this again throws more effort upon the heart. But the heart responds with the extra effort and still sends the blood into the contracted, inelastic arteries. Tension within the artery goes up more and more all the time. Increasing tension means greater danger of the vessel rupturing, therefore nature again thickens the walls. Greater rigidity and greater inelasticity—then greater effort by the heart and again greater inelasticity and rigidity. Then nature decides she has to do some real strengthening to the artery walls and she now begins to deposit lime in the walls of the arteries, producing what we know as "calcified arteries," arteries with walls brittle like pipestems and just as inelastic. And now nature has done all she can—has played her last trump. What she has done has prolonged life for several years, but now there has to be a "show-down" between the heart and the arteries. The arteries simply will not expand and the heart says they must and there they stand and argue it out, the heart struggling with all its mighty might to send the blood along to the tissues that are all calling out for "blood, blood, more blood," and the arteries saying, "well, I can only take so much and no more, for I cannot stretch as I used to," and they try to throw the blood back into the heart again. Well, it is only a little time until either the heart or the bloodvessels give out and we hear that So and So dropped dead from heart disease, from angina pectoris, from apoplexy, etc.

But it may be the kidneys or some other organ that is very vascular that gives way first. Let us consider the kidneys.

Generally the organs are enclosed in a capsule or covering of inelastic fibrous tissue. This is true of the kidneys. Within this capsule the kidney consists of a mass of bloodvessels and secreting cells. These are packed into the capsule unimaginably close together. When, by the reparative processes of nature, new tissue is added to repair or to strengthen the bloodvessel walls there must be increased pressure within the kidney capsule equal to the amount of new tissue added. Not only is pressure increased by this new tissue, but the blood pressure was already raised in every vessel where blood circulates, and the kidney pressure from the double source is great. This great pressure can be imagined when it is recalled that the kidney within the capsule is a mass of bloodvessels carrying the blood to the secreting cells of the organ for purification by having the poisons of the body—or a large part of them—removed by those secreting cells.

This increased pressure bears upon the secreting cells of the kidney, at first simply interfering with their function, but later setting up inflammatory changes which physicians recognize as nephritis, Bright's Disease, etc., diseases which kill the body by destroying its poison-elimination filters, the kidneys.

But it may be the brain or liver or some other organ that yields, even, as already indicated, the heart itself. For it must not be overlooked that the heart which pumps blood into every other organ to keep it built up and repaired by new building materials also must pump blood into its own structure to keep itself repaired. The heart, therefore, has its own bloodvessels, which may, and often do, undergo degeneration such as described, and when this happens almost anything other than long life may happen.

What organ will be first to yield will depend upon several factors, as heredity; prenatal and postnatal care of the child; occupation; diet and other personal habits, not the least of which may well be the mental or emotional control possessed by the individual.

It is your high-living, under-exercising friend of whose sudden death you are shocked to read in the morning papers, coupled with the statement that he never seemed better than a few hours before it all happened so—mysteriously (?). But there should be not the least mystery about it, especially to those friends who must have known the living habits of the individual. And it never would be any mystery to those friends with any capacity for original thought, if they would do a little thinking about the laws of nature and their inviolability.

It ought to be possible for any reasonably intelligent person to look into the ways of nature sufficiently to understand that the very fact that nature has given to us an organ, a function, a faculty, is sufficient proof that nature intended us to make full use of that organ, function or faculty, and that it is nature's way to tend to destroy it if we refuse to carry out her intent with regard to it. Any intelligent person ought to, then, have known that the dead friend who did not exercise his muscles much, if at all, but did exercise his digestive functions a great deal, must be paying the price in physical degeneration, and that it was at some stage in this physical degenerative process that he died. Perhaps he inherited a poor heart structure which early yielded to the oncoming inelasticity of his arteries and he died of "heart failure." Perhaps it was the bloodvessels that were of inherited poor structure and a small vessel wall ruptured in the brain substance and he died of "cerebral hemorrhage" or "apoplexy." Perhaps it was some other vital part which gave way; but always your friend died from abuse by himself of his vital organs, through indulgent or coddling habits. He died from the errors of civilization—the most fiendish of which is the belief that civilization is consonant with physical ease; physical comfort; physical coddling; luxury; and that doing as we desire or wish rather than as we ought brings no penalties.

A book might be written upon the organic and functional disturbances resulting in the animal body through failure to expose the skin to environmental contacts and to fully and regularly exercise the voluntary muscles. But I have said enough to show the really intelligent seeker after the way to Permanent Health how vitally important it is that the two chains of vital reflex functions set up by environmental contacts (direct skin contact with the wind, sun's rays, wind, rain, fog, dew, heat, cold, the earth itself; or their equivalents: fresh cool air, and light rays from the sun through an open window, and cool or cold bathing, skin friction and pommeling of the body surface), and the vigorous and systematized exercise of all the voluntary muscles of the body, shall be directed continually by the intelligence and sustained by a determined will, if he is to live in civilization and yet retain the primitive man's natural immunity from disease, which it is so manifestly the intent of the Creator that he shall possess.

The unintelligent seeker, if there can be any such, must be reached, if reached at all, in some other way.

CHAPTER TWENTY-SIX

WE MUST EARN—WE CANNOT BUY—HEALTH AND IMMUNITY FROM DISEASE.

I have, at some length, shown the disadvantages to the human body arising from a failure to vigorously and systematically exercise the voluntary muscles. It must, therefore, be clear to the reader why I almost make systematized muscular exercise a religious observance or rite.

Indeed, looked at from the point of view expressed in the Prologue to Part One of this book under the title, "The Body Beautiful," systematized physical exercises do take on the quality of a religious rite; for is not duty the very essence or soul of religion, therefore, of a religious rite? And has not God placed upon us the duty of caring for this *potentially* beautiful temple of the soul?

It is for this reason that few persons can be more constant in their devotional or religious exercises than I am in my adherence to my physical exercises. As I see it, my soul cannot make the most of itself while it inhabits a ramshackle body, an ugly, obese body, or even an indifferently-constructed body.

As I see it, too, there is little to be wondered at in the failure of the idea of Deity to capture the imaginations of the masses of men and women in a world in which disease and physical suffering are the *presumed* God-fashioned or God-intended lot of mankind.

At the time of my own awakening to the all-sufficiency of nature through the half-impertinent question of the young mother, referred to in another chapter, my blood pressure stood at 212. I have already stated that my heart beats were "chaotic." Can this be wondered at in view of the family history disclosed in a previous chapter?

It was because of this family history and my progressive decrepitude that my physician friends consigned me—I then thought correctly—to the scrap heap and advised me, sympathetically, to be prepared for the end.

By all the factors by which physicians are usually guided, they were right. According to all the canons of medical art, I was doomed. Provided my condition continued to be treated by conventional medical artifices, which too often seek to repair parts by artifice rather than to reconstruct them by seeking out the causative interferences with nature's laws and, kicking these ruthlessly aside, allow nature's reparative and reconstructive processes to do that thing, I was doomed. My own previous experience warranted their gloomy verdict and caused me to acquiesce in it.

Strange that none of us had given a thought to the intent of nature to keep the animal body well, and her marvelously perfect provisions to enable the animal—which includes the human—to be well.

But before I could answer to myself that young mother's question I had to take God and Creative intent and the all-sufficiency of nature into account, and then I began to see. Before I had completed the vigil of that night, following the questioning, I had seen, though not formulated, the truths, which I later worked out in the form of laws as they now stand expressed in "Basic Principles."

I would have the reader understand I am not "knocking" the medical profession. The business of the medical profession is to repair broken bodies and the members of that profession do this duty in any way they can, and by any artifice that seems to apply. I will only say the time is bound to come, and comparatively soon, when physicians are to be paid for teaching the people how to remain well by the use of natural means. But that time will not come until the people are sufficiently enlightened to demand such direction. *To help that time to arrive is one of the objects of this book.* Those who decry the unnatural or artificial methods of the medical profession must remember that the medical profession cannot be any more advanced than the public will stand for and the doctor who tries to be is generally allowed to starve. The people are not looking to the doctors for advice about how to live so as to be and remain well. The people simply *wish* to follow the dictates of their sweet wills as to living habits and pay the doctor to get them relieved from the sad results of such living habits, not by telling them what to do but by giving them something to take, so that they may keep on with their folly-devised habits.

A few years ago I had a rather startling demonstration of this fact. A clergyman had been sent to me by another physician. He came over a thousand miles to consult me. He seemed unusually intelligent and I thought I could take the chance to tell him how to live himself into wellness. Notwithstanding that my waiting room was filled with waiting patients, I took two hours to tell him how it might be done. When he had finally taken his leave and was outside in the corridor, he almost immediately poked his head back inside the door and said: "By the way, doctor, do I owe you anything for this?" I motioned for him to come in and then I said: "Sit down for a minute. Now, just why do you ask me whether you owe anything?" His reply was: "Well, I don't just know, but—I suppose it was because you—didn't give me anything." I said: "I suppose if I had looked at your tongue, felt your pulse, palpated your abdomen, asked you a few questions and written you a prescription in Latin you'd have been quite pleased to pay me $5.00 to $10.00, even if the prescription cost you another $3.00?" "Yes, I suppose I would," he replied. To this I replied: "But because I have spent two hours of my time and a lot of my other patients' time trying to teach you how to become well and remain well by simply taking God's medicine that costs nothing, you think I am not entitled to any remuneration?" His reply was, "O, I never thought of that." So you see what the medical man is up against. The average patient who goes to a doctor would, if he were given simply good-living advice, go immediately to another "doctor with some sense" who would give him "something to take." I know, for I have been through the sad experience.

It had always been my fortune, good or bad, that I would try to follow my convictions. I had been a most consistent follower of the conventional medical treatment. If I felt depressed I took a stimulant drug. If I felt "nervous" I took a sedative drug. If I was constipated I took a laxative. If I had a headache and was constipated, I took a purgative or cathartic drug. If I suffered from indigestion, I took pepsin and hydrochloric acid or, perhaps, pancreatin or a bitter tonic or an alkali drug, all depending upon the manifestations or symptoms. If I had a cold, I took a drastic purge and quinine or belladonna or both. If I did not sleep I took a hypnotic drug. If I had "rheumatism," and I very often had, I took some of the salycillates or some other drug. For high blood pressure, I took the iodides, or other drugs. For my frequent headaches I took some of the coal-tar derivatives or some proprietary migraine tablets. Needless to say, I constantly had one, some, or many of these maladies, really manifestations of one huge physical or physiological disturbance which we doctors had worked out to be manifestations of certain pathological states to which we gave the conventional disease names with which medical art tags these pathological states.

After having fully taken stock and as fully realizing that I must die anyway, under my present treatment, I had all the more courage in attempting something new—at least new in my experience. I decided that if nature had really intended me to be well and had provided me with a marvellous mechanism of body defence that I might be well, I would henceforth depend upon nature as faithfully as I had depended upon art, up to that time.

In chapter twenty-four I have described one set of measures adopted to set in motion one chain of natural reflexes, those originating in the skin contacts with the environment.

In this chapter I shall describe another set of measures which I adopted to set in operation another chain of natural reflexes governing functions, those originating in active or vigorous muscular exercises.

In the previous chapter, I showed the degenerative effects upon the heart and arteries, the kidneys, liver, brain, glands and all functioning body parts by refusing to exercise the voluntary muscles vigorously and systematically out of doors.

Please bear in mind that these results are cumulative and that it is not my contention that they will follow a short neglect to exercise. That is not nature's way. Before symptoms develop sufficiently to call attention to themselves the causes of these have been in operation, usually many years. It is for this reason that manifestations begin around middle life or shortly thereafter. More young people are now "living well" and taking little exercise than ever before in history. That is why diseases of the heart, arteries, kidneys, liver, gall bladder, brain, nervous system and gastro-intestinal system are constantly on the increase, as shown by life insurance company tables. It is also why younger and younger people are being attacked by these diseases that are really diseases of very advanced life, even if they can be truly said to belong normally to human life at any age.

It is claimed by a very high authority that 65,000 young people, under forty years of age, now die each year, in the United States alone, from these old-age diseases that, if they belong to mankind at all, belong properly after the age of seventy—eighty—ninety—one hundred, or even beyond.

When we realize the effect that failure to regularly and systematically exercise the voluntary muscles has upon the vital organs of the circulation, and other vital organs as the kidneys, and then stop to consider the use of the motor car, the street car, the elevator and escalator, and all the other ways in which the actual necessity for exercise has been curtailed in civilization, and that there is a consequent failure upon the part of almost everybody in civilization to take exercise, we do not longer wonder that the old-age diseases attack the really young. Through muscular inactivity and improper foods and feeding habits, the young have brought premature senility or old-age disease upon themselves.

I had brought premature old age upon myself. I was dying of old age in what ought to have been middle life. Twenty-five years later I am youthful, vigorous, forward-looking and feel as if I were really just beginning my career, which I actually think is true.

How did I do it? First of all, I corrected my diet, as I shall outline in a later chapter. But I also corrected my exercise habits—rather my habit of not exercising. For many years I had "saved myself" all I could by refusing to use my energy for any purpose other than just living and doing those physical acts necessary in my attempts to make a living. I believed I needed all my energy to keep my organs going. I had not then realized that my vital organs were really vitalized by vigorous exercise of my voluntary muscles in the out of doors, as nature intended them to be.

I now changed my entire regimen of living. I began by easy stages to get rid of the layers of impeding clothing with which I had insulated my body against the environment. Coincidentally, I began to accustom my skin to cool air contacts and daily baths, at first by sponging the skin with tepid water in a well-aired, previously ventilated room, as already described. Then I began to open the window a little, top and bottom, and take just a little rapidly-moving physical exercise, consisting mostly of quickly rubbing the skin with the palms of my hands and slapping it until it tingled, rising on my tiptoes several times and settling slowly back to the soles of my feet. Standing back two and a half feet from a wall and with my palms against the wall, allow my body to fall towards the wall until my chest almost touched it, then push the body back again to arm's length from the wall. Standing with back to mirror and trying to turn the body so as to look my reflection directly in the eyes without moving the feet on floor. Standing with the feet about eight to ten inches apart, hands on sides just above the hip bones, bending the body forward, then keeping it bent swing it around to the right side, then on around to the back and on around towards the left side to the point of starting. Then I reversed the movement. A little later I began bending body as far over to the right side as I could, trying to touch the outer side of leg as far below knee as I was able, with my finger tips. At the same time, I threw my left arm and hand upward and over my head. I then reversed the movement. Then I began bending forward trying to touch my toes without bending my knees. I then began opening my window wider, for it was summer time, and, lying flat on my back on my bed, I crossed my arms in front and, grasping each arm just above the elbow with the opposite hand and drawing forcibly upon my arms, I at the same time raised the body to a sitting posture. Then I slowly allowed my body to resume the recumbent position. In short, I gradually evolved a whole series of movements calculated to develop every muscular group in the body, but I devoted especial care to exercises that developed the muscles about the waist and the abdominal muscles. This was for the good reason that the waist and abdominal muscles are auxiliary supports for all of the intra-abdominal organs. When they are relaxed, the abdominal organs often sag and the circulation in them is impaired and this cannot but tend to impair function.

No need to take more room to describe these exercises, as any good book on muscular exercises will supply good enough ones for all purposes, and I shall describe my whole system in chapter thirty-eight.

Soon I began walking, at first only four blocks. After two weeks I made five blocks, two weeks later six blocks, two weeks later eight blocks, then ten and twelve, etc., until within six months I was walking six miles, though not always without resting. Then I began to walk faster and faster, without increasing distance. When I was able to walk the first two miles in forty minutes I began to add squatting exercises to my room exercises; placing my hands to sides above hips I squatted until my hips contacted my heels, then I rose to a standing position. When I was able to do this ten times in close succession without getting "winded" or wobbly in the knees I began stationary running. With arms bent at sides, as in actual running, I stood in one place and ran on my toes or balls of my feet ten times, at first very guardedly, then I gradually increased the number of steps.

When I could run fifty steps without "seeing black" and feeling my heart beat as if it would jump out of my bosom I began to do a little hill climbing, seeking at first very short and gentle slopes, then longer slopes and then longer and steeper ones. Soon I was climbing stairs to my office on the fourth floor, beginning by climbing at first only one flight, then two and finally the whole four flights.

I then began to lift light weights; gradually, very gradually, increasing them.

By these various measures I gave to my every voluntary muscle vigorous exercise, always keeping it up until just the beginning of tiredness, then promptly and positively stopping. But I was as careful to keep on until I was getting tired as I was to stop at that point, since that is the only method of training functional power to increase.

Finally I got to the point where I could lie on my bed quite nude with the windows open for half an hour in zero weather, at the same time keeping up vigorous muscular movements to keep up the circulation. Then I'd go to the bathroom and carry out the routine already described, completing the program there by pommeling my body from head to feet with my closed fists and frictioning the skin from scalp to toes, these final manipulations being, in my opinion, the best of the entire series of my exercises.

When I began my exercises my bloodvessels were of such poor grade that almost if I were struck with a feather I would have a great blue mark on the skin, showing rupture of the capillary walls with resultant bleeding into the surrounding tissue, a condition bordering upon scurvy, and common everywhere. Now I can pound my body as hard as I am able to hit with my closed fists and never leave a shade of color. Moreover, if I now accidentally hit my leg or arm against some hard object with force enough to make a contusion—and it has to be a considerable blow—it is not likely to turn a dark blue, but will be only very slightly discolored and entirely disappear in a few days.

What is the meaning of this? It means that my bloodvessels have regained their elasticity and, being no longer brittle, they do not rupture easily, and my blood and tissues being normally alkaline and my blood and lymph vessels normal, they quickly reabsorb any blood that is extravisated into the tissues from ruptured capillaries. And this means what? It ought to mean that my heart is no longer struggling against rigid and contracted arteries and that it ought to be more normal in its beat, and that is quite true. Within a year, my heart was practically normal, although it would cut a few "capers" on rare occasions for three or four years, but that was generally a reflex condition from my stomach when I happened to overload it or otherwise abuse it.

Naturally, while my heart was getting well, all of my other organs were similarly approaching normal condition, for by my new living habits I was permitting nature, through my Reflex Defensive Mechanism, to have her own way; and she was responding and reconstructing my body as a whole, as she may be counted on to do when properly liberated and co-operated with by a willing mind and body.

It will be observed once more that I made changes in my living habits very slowly and by very easy stages. This was vitally important since any drastic change in accustomed habits might mean disaster to one in my devitalized state. It must be remembered that organic functions are not under control of the will, but of the reflex nervous system, and thus they can only slowly adapt themselves to any new conditions.

Sudden changes of habit by enthusiasts often make great harm out of what would be the most beneficent of operations if undertaken by the gradual method, giving nature a chance to slowly readjust herself. This is true regardless of the health of the individual, but it is vital when the health has long been precarious. But the chronically sick are seldom patient and they are as seldom persistent in anything but change. They rarely study to understand what is the natural thing to do and then, by easy stages, bring themselves to do that thing and continue in that way until nature has had time, through natural living habits, to reconstruct what it has taken years to break down.

I have made this little diversion, because I know from long experience in treating the chronically sick that it is positively necessary to impress upon them that nature cannot be rushed. The thing to do is to get into her way of living, by easy stages, then give her time and she will work seeming miracles.

Let it not be imagined, because I have stressed skin exposure to cold air, light, cool or cold bathing, and physical exercises, that I look upon these by themselves as capable of effecting permanent health. They will delay the breaking time in those not yet showing signs of breaking; but they must be supplemented with the proper stimulation of all the other reflex chains or the body will begin to limp along in an impaired way years before it is the intention of nature that it must. It would be as unlikely, or even as impossible, to secure permanent health by these measures alone as it would be to secure it by diet alone. To become and remain immune from disease requires the full functioning of all the reflex chains. If there is greater importance to be attached to any one chain it ought to be attached to diet. But to attach undue importance to diet is to give diet its poorest chance to work its normalizing influence upon the body functions.

Now we must return to physical exercises, with which subject this chapter deals.

What, really, did I do for my body when I began to exercise my voluntary muscles, that helped to normalize it?

To begin with, as pointed out in the previous chapter, I was compelled to breathe more deeply. I thus took more oxygen into my blood. This aided in the burning up of waste matter in my tissues that had acted as a burden to my body cells. I also caused greater activity in all the body's glands, but especially the sweat glands. By this means I got rid of more waste matter that had been a burden to my body cells. But the greater oxygen-content in my blood also acted as a natural stimulus to my glands, the secretions of many of which have, as their function, the neutralizing of body poisons. This still further relieved my body cells of burdensome materials that had prevented normal cellular activity. There was also a very beneficent effect upon the digestive function, for the digestive tract is one great conglomeration of glands, and all gland structures are bound to functionally improve when there is an increased oxygenation of the blood. It is very common knowledge that digestion is improved by out-of-doors exercise, and this fact is largely the explanation of it. Of course, there is the other fact, already pointed out, that the improvement effected in the voluntary muscles themselves, by exercise, is reflected over to the involuntary structures. The point to remember is that in both of these ways digestion is made more perfect by exercise in the open air. Perhaps it ought to be emphasized by repeating that exercise lessens the tendency to constipation, because the increase in the functioning power that is imparted to the voluntary muscles by exercise is reflected over to the involuntary muscles constituting the bowel wall, and that this increase in bowel function materially assists digestion, while it lessens the general intoxication, which lessening of intoxication, in its turn, again reacts favorably upon digestion, and the better digestion reacts favorably upon the auto-intoxication, thus a favorable or benign cycle takes the place of what had been a vicious cycle.

To improve digestion by the exercise of the voluntary muscles must improve cellular and organic functions all over the body, because there will be less waste to clog and impede the excretory functions. Then the poisons that must be formed in the most perfectly functioning body are the more easily thrown out of the body when no poisons are formed as a result of poor digestion and its almost constant associate condition, constipation. When the body cells are not depressed by retained poisons, and when the blood contains more oxygen, the nerve cells come in for their full share of benefit, consequently the nerve impulses which they send out to the organs are more vigorous or more normal and the work done by the organs so stimulated must be more normal work.

Keep in mind, in this connection, that organs act only when they are set to work by a nerve impulse communicated to them by nerve cells and transmitted to them over a communicating nerve, hence the improved organic functioning in response to improved nerve function. When the body cells are depressed the nerve cells must be, and the organs stimulated by them must also be, and the work done by the organs must be below normal. If the nerve cells are poisoned by accumulating body tissue or food wastes, the nerve cells controlling the calibre of the bloodvessels and the action of the heart must be affected. With these poisons removed and no longer formed in abnormal amounts, the nerve cells governing the heart and bloodvessels will send out more normal impulses and the functions of these organs will be more normal.

Of course, it will be understood that every approach to the normal elimination of body wastes, and to the lessened formation of abnormal wastes, as from indigestion and constipation favored by lack of muscular exercises, will, to that extent, lift the burden from the body cells and, therefore, from the nerve cells governing the heart and bloodvessels and their functions, and, to a similar extent, tend to normalize their action. As this normalization of heart and bloodvessel activity proceeds, the vessel walls begin to relax and become more elastic, the tension within the arteries becomes lower. Lower tension within the arteries, with increased elasticity in the artery walls, allowing them more easily to expand to accommodate the new inflow of blood each time the heart contracts or beats, relieves the heart of its extra burden to an extent equal to the extent of the returning arterial elasticity and consequent lessened internal arterial tension.

But the heart receives a double benefit in that its work is lessened and the nerve impulses to which it must respond are more normal.

All these reflex benefits, and many more, arise from the deep breathing, the improvement in digestion and the aid to intestinal elimination, the increased glandular activity, etc., which follow from increasingly vigorous exercise of the voluntary muscles out of doors. The gradual increase in the vigor of the muscular exercises gradually increases the approach to normal activity of all the organs. And this gradual approach is aided and hastened, gradually, of course, by the gradual development of the skin reflexes, as discussed in chapter twenty-four.

There is one source of marked organic benefit not yet sufficiently touched upon.

I have elsewhere said that all the functions and organs are under the control of the reflex nervous system and have no direct relation to the will. I have also shown that all cells, organs or body parts are correlated and interrelated by the ramifications of the reflex nervous system.

The importance of the foregoing facts is that as the voluntary muscle tone increases, this improved tone is reflected over to all parts of the body, including, of course, the heart and bloodvessels. It is this reflected improvement that is responsible for the improvement in digestive and intestinal function, which results from vigorous out-of-doors exercise. And this comes about, in the first place, because the improvement in muscular tone is reflected over to the controlling nerve cells of the reflex nervous system. The nerve cells feeling the reflected tone gathering in the exercised muscles relays this improved tone on to every cell, organ and body part; which must take in the heart and bloodvessels.

There is still another way in which improved and improving muscular tone aids the heart and bloodvessels.

We conceive of the blood as being pumped through the bloodvessels by the contractions of the heart. This, of course, is quite true. But there is an accessory circulatory factor of great importance connected with the contraction of the voluntary muscles.

It is difficult to intelligently describe or discuss this factor without going into a rather dry, anatomico-physiological description of the heart and bloodvessels. But I shall try to be very brief and bore as little as possible.

When the blood is pumped into the arteries the artery walls are stretched and when the heart relaxes to refill its cavities a valve closes at the heart outlet, preventing the blood flowing back into the heart. This leaves the blood crowded into the arteries, under pressure from the stretched artery walls. Between the arteries and the veins are little microscopic vessels, the blood capillaries. The stretched, elastic-walled arteries, in trying to recoil to their normal, unstretched calibre, force the blood onward into the capillaries and on through them into the veins. The arteries carry the blood away from the heart and have the impulse of the heart beat on closure directly behind the blood column to add to the elastic recoil of the stretched artery walls to force the blood along.

But the veins do not have the direct heart force to help them to carry the blood back to the heart, to a large extent against gravity, or up hill. The capillaries come in between. Neither do the veins have thick, elastic walls, like the arteries. The chief agent in the return of the blood to the heart *via* the veins is the contraction of the voluntary muscles.

While the veins do not have these elastic walls, like the arteries, they have valves placed at certain more or less regular distances from each other, which the arteries do not have. Now imagine the veins filled with blood, then the voluntary muscles contract and this blood is forced on towards the heart by that contraction and its return is prevented by the valves referred to. When the muscles contract the veins are squeezed flat and emptied of blood in the only direction it can flow, away from the capillaries, for the valves will not allow it to reflow backwards. It will be seen that the less the muscles are used the greater the tendency is for the blood to stagnate in the veins and dam back against the capillaries, thus laying a greater burden on the heart and the arteries on the other side of the capillaries.

But that is not all. The unexercised muscle is flabby, or has lost its tone, as we prefer to say. This means that the thin walls do not have the normal support of the normal, firm muscles. The vein walls have thus a tendency to relax and stretch and the valves to become incompetent and thus allow the blood to reflow backwards, to still more stagnate and dam back against the capillaries, throwing the burden upon the heart and arteries on the other side of the capillaries.

That all of these circulatory defects were present in my own case was evident from the distention and tortuosity of the veins of the skin; from the cold, slightly bluish hands and feet; from the numbness often present in the feet, legs and fingers; and from the presence of hemorrhoids or piles.

When I began to exercise I also began, by contracting my muscles more or less vigorously, to force the venous blood along towards my heart, with each muscle contraction. This relieved, temporarily, the damming back against the capillaries, and this relieved, to an equal extent, the pressure upon the heart and arteries on the other side of the capillaries. Every increase in my muscular activities increased the relief of the heart and arteries. But as these muscular activities increased in force, and with regulated continuity, the tone or firmness of the muscles increased, too, thus tending to restore the normal muscular supports to the relaxed vein walls and restore to complete function the vein valves so that the venous blood did not flow back towards the capillaries. Thus my heart and arteries were relieved from the backward pressure caused by the stagnating venous blood.

But I must stop. The very list of benefits the body derives from vigorous exercise of its voluntary muscles out of doors would become tedious, if carried on to the end.

Add together these various benefits described and it will be seen that there is little to be surprised at that I soon began to know that I was getting well. That ought to mean that I have said enough about muscular exercises to serve my present purpose, which is to convince the reader that vigorous, out-of-doors exercise is invaluable to one who would remain, or become and then remain, always well.

Bear in mind that to be always well does not mean to always live, but to be always well while alive, and when death does come that it will come in a quiet and painless way, in great old age, probably during sleep. And it means, also, that for all those many years one may be vigorous and free from either mental or physical decrepitude, his accumulated wisdom and experience and judgment an inspiration and guide to younger men and a continually increasing benefit, yet not a burden to his friends, his family and his race.

CHAPTER TWENTY-SEVEN

HOW WE BUILD SICKNESS AND DISEASE.

Why do I take a long walk, even in the coldest weather of winter, before I eat breakfast, then breakfast upon fruit or fruit and milk?

Again, why do I sometimes take a long walk and eat no breakfast? I shall answer the latter question first, because it can be answered in a very few words. If my stomach feels disturbed in the slightest degree or if I have a bad taste in my mouth I eat no breakfast, since what is the benefit in putting good food into a stomach that is already more or less out of commission? How much more sensible to rest the organ by not taking food at all, then by next meal time it will be prepared to perfectly digest any reasonable quantity of good food, thus preserving its own functioning power through not burdening it when it is not well and also saving my tissues from having to struggle with a lot of the products of indigestion. By such simple, sensible measures can the vitality and the resistance of the bodily organs and cells be promoted and sustained.

These practices, so at variance with the habits of civilized people in general, must make me appear to be out of step with human progress, since all so-called advanced races believe in a "good substantial breakfast" and also believe in eating it before the day's activities begin, so they will "have something to work on."

In fact, the average civilized person is so "all in" before he has taken food in the morning that he is more or less incapable of a long walk, or other vigorous physical effort, until he has taken a "good substantial meal."

I, too, was once civilized enough to be in that class.

For many years I had my large plate of porridge, then my pork chops and potatoes; or sausages and pancakes; or ham and eggs; or bacon and eggs, and often after these "good nourishing foods" some marmalade and toast—yes, well-buttered toast. And then I was additionally fortified by one or several cups of "good" coffee or tea. With my porridge I had always plenty of sugar and cream to give me energy, for is not sugar quickly oxidized into body heat and energy, and butter fat only a little less slowly turned into the same much-needed body energy and heat? And are not pork chops, beefsteak, sausages, ham and bacon and eggs all tissue-building foods required to build and repair the muscles, the organs, the connective tissues, etc., of the human body? Of course they are. And does the body not need heat and energy, body-building and repair materials to "go on" every day in the year? Of course it does. Then are such breakfasts taken first thing in the morning not the acme of common sense? Well, I used to think so. And, do you know, it was because that kind of reasoning appealed to me that my breakfasts at one time came to partake often of several of the "good nourishing foods" mentioned above: say porridge, cream, sugar (lots of it), ham or bacon, eggs, fried potatoes, sausages and corn bread or toast and marmalade, coffee and tea. I did not learn to take such a "good nourishing breakfast" as this all at once. My health philosophy, however, was the conventional one outlined above. I was "raised" on a good breakfast of porridge. But when I grew older, and, of course, wiser, I realized that porridge was hardly enough for a full-grown man, especially when that man was always "empty" and had an "all-gone" feeling long before noon. So I did the logical thing—took more "good nourishing food." I began by adding an egg and a bit of toast. Then two eggs; then bacon or ham, eggs and toast. Then—then—and then—until I rose from the table stuffed. But always I was "empty" before noon. So at noon I had mashed potatoes and steak or chops and white bread and jam and pie and milk or coffee. Then for dinner I had a "real" meal: soup, roast, potatoes, bread, cooked vegetables sometimes, pudding or pie or both; milk or coffee.

Would you believe it?—with all those "good nourishing" meals, I was "all-gone" in the morning until I had something to eat? Strange to say, too, the more nourishing the meals I ate, and the larger, the "all-goner" I was in the morning and generally also before each meal was due.

But what was I to do? I could not eat any more at a meal and I could not think of any more nourishing foods. Well, one thing I could do, I could eat oftener; as often as I felt "empty." And so I did. I ate four and five times a day. Nevertheless, I always had that "all-gone" feeling in the morning; and it began to seem worse the oftener and the more I ate. I was often so impressed, yet how could that be—lots and lots of "good nourishing food," the great stand-by of my profession, to counteract the sense of emptiness and "all-goneness" which I associated, and physicians generally associate, with deficient food? And so I laughed the idea away.

Then there was another phenomenon that puzzled me greatly. That was the gradual onset of regularly-recurring headaches. Later on, I could have explained these when constipation had begun to have a considerable part to play in my symptom complex. But in those days when I was learning my early lessons concerning the taking of lots of "good nourishing food" my bowel movements appeared—note I said *appeared*—normal.

Nevertheless, I had to take a purgative at the end of each week. Later I had to take a purgative drug twice a week, to avoid suffering with headaches. There were times when these purges did not save me from splitting headaches and I had to resort to the "coal-tar derivatives," generally acetanilid. But since acetanilid was a heart depressant and my heart was none too good, I added caffein as a heart stimulant.

The point is, I was taking all this time "lots of good nourishing food," if ever anyone did, yet I was gradually going down hill.

Soon my digestive organs began to give out, to rebel against doing their work, in spite of the amounts of "good nourishing food" that I was pouring into them. And when one thinks of it from one angle that is strange, too, for the digestive organs are, like all the rest of the body, built up, repaired, maintained and energized out of the foods we eat. And my foods, being such "good nourishing foods," should surely have kept my digestive organs in good repair, therefore in good functioning, or good working, order. It was many years before I saw the fallacy in that reasoning. It was not until I was awakened by the question of the young mother referred to in chapter twenty-two. Years enough had passed, that, ruled by the conventional belief I was holding to in regard to "good nourishing foods," I had all but killed myself.

When I was awakened from my fools' food and feeding philosophy, I saw quite clearly through the whole ghastly mistake, or series of mistakes, which was responsible for leading me so close to that dismal door towards which no normal human looks with a smile or a brightening of the eye. But I saw that the key mistake of the series was the conventional mistake about foods and feeding habits.

I might have seen—and anyone else might now see, but few do—that when I was taking increasing quantities of "good nourishing food," yet continually growing more and more definitely and increasingly into that feeling of "all-goneness" when I was not eating, there must be something wrong with my food philosophy. Surely, if lack of nourishment was the cause of that "all-goneness," then more "good nourishing food" ought to conquer that feeling. But it did not. It seemed to do the opposite.

Strange to say, instead of suspecting the validity of my food and feeding philosophy and adjusting it to the dictates of sound reason and common sense, I did the opposite. I simply accepted without question the conventional food beliefs handed down from a less-analytical past, as unquestioningly as do the other ninety-nine per cent. of civilized savages who continue to "eat their heads off" and "dig their (premature) graves with their teeth": And I adjusted my other living habits to harmonize with that fools' philosophy.

I concluded that, because "lots of good nourishing food" was a necessity to me, I must reduce my physical activities in order that more of my bodily energy could be devoted to taking care of my foods and thus to the rebuilding of my body. So I stopped walking—stopped playing—stopped everything that I could stop and still make a living; stopped everything save sleeping and eating. But in an earlier chapter I have described the physical debility to which I was ultimately reduced in spite of the fact that I had practically given over all my energies to the nourishment of my body, which, for some undiscoverable reason, simply refused to be nourished, refused to become well—steadily and increasingly became unwell.

Of course, I knew, and my physician friends also knew, why. It was because I was sick. But why was I sick? Well, sickness, you know, just comes to us, no one ever knows just why. It catches us, don't you know?

That was my philosophy, and to a great extent is the philosophy of my profession to this day. I was sick, no one knew why, and I must be built up by "lots of good nourishing foods" and "nature-assisted" by digestives, alteratives, tonics, laxatives, sedatives, stimulants and a host of other kinds of drugs. That was as far as we ever got. But my sick body simply refused to get well in spite of all the "good nourishing foods" I could eat, aided by all the drugs that we could think of.

And then the young mother crossed my path, and, with her pert question, the real import of which she would be the last to guess, caused me to change my whole health philosophy and—save my life. And, I presume, because of that changed philosophy I have no right to rank as civilized, with regard to my living habits, since I freely admit my living habits are no longer the habits of civilized peoples.

But, for me, here is the "nub" of the whole question. I am no longer diseased—seem, in fact, to be immune from all diseases, while the more highly civilized (?) among my fellows are prone to sickness and disease, and daily, some, years younger, are dying of old-age diseases, such as years ago afflicted me, but afflict me no longer.

CHAPTER TWENTY-EIGHT

THE MARVEL IS THAT WE LIVE SO LONG—AND LIVE THE WAY WE LIVE.

If the reader will refer back to chapter twenty-two and there note the statement made by me in my attempt to comfort the young mother of the marasmic babe; and also note her reply, he will find there the key that, made proper use of, will lead to the proper answer.

"Feed a child according to its powers of digestion, absorption, assimilation and elimination, give reasonable attention to hygiene, and it will grow and flourish like a green bay tree"; and "When, in the life of any individual does that principle cease to act?" became the "open sesame" of my deliverance from the premature menace of the "old fellow with the scythe."

Within a short two weeks after that night I kicked him off my porch one night and I have not seen his threatening shadow since.

It came about in this way. As I sat that long night through, I made no end of excursions into lanes and leads of thought all unfamiliar to the orthodox medical mind, at least as it was constituted at that time, although short excursions down these leads and lanes are not so unfamiliar to the orthodox medical mind now. I shall make no attempt to hint at the various directions in which these excursions of thought led.

The end result is all that matters. And that result was a decision that the principle that I applied with such confidence in the case of the babe could not help applying throughout life. I, therefore, changed its expression to: "Feed a human being according to his powers of digestion, absorption, assimilation and elimination, and give him reasonable hygienic and sanitary care, and he will never be diseased; or, if diseased, and organic destruction has not proceeded too far, he will get well and stay well."

That meant a modification, almost a complete reversal, of my previous conception of the causation of disease and its cure. Disease was no longer something I might catch or that might catch me, but something primarily developed within my own body, by my own living habits.

Strange, when once I saw that freedom from, or bondage to, disease is a matter of living habits, how quickly I also saw the grotesqueness in my former conception of building health through the use of excessive quantities of "good nourishing foods," without any regard whatever as to how those foods were mixed together for use in my digestive tract, in which they were intended to be operated upon by the different secretions of that tract; or without any consideration at all as to whether their quantity and kind might be beyond the powers of my digestive function to properly prepare for absorption; and without any thought at all of what effect was produced within my body by foods I did not properly digest, or of those foods which I might even digest in excess of the needs of the body for such foods.

While I believe it would be interesting to many readers to show the reasoning which led to the following conclusion, I fear the majority of readers will be better satisfied by the mere statement of the conclusion, taking the reasoning for granted.

That conclusion, simply stated, is that my body, filled with food, is either a healthy-body-building factory or an unhealthy-body-building factory. If the foods eaten are natural, therefore possessed of life, therefore vitalizing or life-imparting foods, properly combined so as to be compatible with each other, and eaten in amounts sufficient for building and repairing and energizing the body, but never in quantities or kinds beyond the digestive, absorptive, assimilative and eliminative powers of the body, the body so fed can do nothing else than build itself health, so far as its foods are concerned.

But if the foods eaten are a hodge-podge of all kinds of "good nourishing foods" thrown together at random, without the least thought as to their suitability for combining with each other; or of the possible quantitative needs of the body; or of the possible limitations of the digestive powers possessed by the body; or whether they are vitalizing foods —or mere dead building substance; or of the devitalizing effects that excess of food taken into the body must exercise if it is not digested, and the destructive effects which even well-digested food will have upon the organs that must get rid of it when taken in excess of the body's needs, then the body can do nothing else than build for itself disease.

Not that disease must in all cases appear with a short use of these irrational feeding habits, but always it is proceeding and will appear in time to shorten the life of the irrational feeder. And that is true even if the occasional irrational, hereditarily very vital feeder lives for one hundred years. Such a one might have lived to be 125 or even 150 years old and constantly been an inspiration to younger men than himself, had reason guided his feeding habits, had knowledge instead of haphazard suggested his foods.

It must never be held against the foregoing conclusions that it takes a long while for these bad habits to get in their deadly work in some bodies, endowed by heredity with an iron resistance; disease is building in such a mistreated body and that body must break years and years before it otherwise would, and often pay in years and years of suffering for the misuse it has made of foods.

In the light of this conclusion, I began to wonder how I had lived so long. I had given absolutely no thought to the suitability of my food combinations. It had never occurred to me, when I crammed foods into my stomach that could only be digested in an acid medium (proteins), at the same time with foods that can only be digested (while in the stomach), by the saliva mixed with it in passing through the mouth and only in an alkaline medium (starches), that one of those foods could not digest in the stomach at all. Nor did it ever occur to me when I mixed with both a large quantity of sugar, which is quickly available for the body's heat and energy requirements, that if sufficient energy were available from that quickly realizable source to supply the body's needs, the digestion of both starches and proteins would be delayed, if not stopped altogether; in any case partly breaking down into substances that, to a greater or lesser extent, must poison my body tissues and throw a burden upon my organs of excretion.

It was then I began to see that my "lots of good nourishing food" had been building disease for me instead of building the health for which I had been taking them. I realized for the first time—because it was the first time I had ever really thought hard about it—that my foods were largely poison to me, as foods always must be when they are not used in a way to serve the body as building materials or body energizers or body vitalizers, the latter office quite distinct from body-building, or even energizing, for it is quite possible for foods to seem to build and energize the body well, yet give to it no vital resistance. And I also realized for the first time that all food in excess of the body's needs, especially if it is protein food, is a tax upon the organs of excretion and, therefore, a drain upon the vitality.

I began to see that in two ways I was killing myself: first, by supplying it with foods that did not vitalize it; second, by supplying it with an excess of protein foods that robbed it of what vitality it was able to draw from the food mixtures I was feeding it upon.

I knew then that my body was chronically poisoned and almost literally worn out, laboring under the strain of too much "good nourishing food," for I was eating enough for three hard-working men.

I was puzzled for some time to explain my constant "hunger" which I called the feeling of "emptiness" or "all-goneness" that always set in a few hours after taking food, in spite of the fact that I now realized I had been taking far too much food. Finally, I recalled that as a growing lad I had often gone without a meal, although in that period of development when plenty of food is a physiological need, yet continued to roam the woods or the countryside, and, while I felt hunger, I never knew then that "all-gone" feeling so common an experience in my years of "lots of good nourishing food." Ultimately, it dawned upon me that the "all-gone" sensation that beset me when I was at any time a few hours without taking fresh food was akin to the depression and hankering of the alcohol or drug habitue when deprived of his "dram" or his "dope" or his "shot" for a time sufficient for its primary stimulating effect to wear off and its secondary toxic or poisonous effect to set in.

I saw now why it was that the larger the meals and the oftener I ate, the more I experienced that "all-gone" sensation and the more imperious became the demand for more food. It was because the more I ate the more I was poisoned by the unusable excess of food; and to counteract the depression of that food poison I continually demanded more fresh food from which to manufacture more poison or "dope" from which to obtain the primary stimulation with which to counteract the secondary depressive stage of the poison made out of the food taken some hours before.

I shall not need to review the procession of thoughts and experiences by which I was besieged during the first few weeks following that night's vigil to which reference has so frequently been made.

The reader who has attentively read thus far will know the thoughts and convictions that came to me as I turned the pages of the book of nature and realized how different the habits of all natural living things, including natural or primitive man, are from the habits of civilized mankind.

But, having concluded that I was poisoned, chronically intoxicated, a chronic food drunkard, what was I going to do about it? Well, one thing, and the first thing, of course, I was going to take *less* food. But how much less? And what kind of food? Less "good nourishing food," or a different kind of foods? How was I to tell how much "good nourishing food" to take? Anyway, if I was filled with poisons from previous excess eating of "good nourishing foods," how was I going to rid my body of those poisons? I pondered these questions for days, continuing to take less, though still "lots of good nourishing food." Lots, although enough less that I suffered the tortures of the reforming inebriate when he partly cuts himself off from his "pill," his "pipe," his "dram" or his "shot."

To make a long story shorter, I finally resolved to take a complete fast, having reasoned that if I took no more food I could at least make no more food poisons, and the oxidation processes going on in my body must burn up and eliminate all body or cellular waste, all food debris and all foreign substances of any nature that cluttered up my body cells and the organs they comprise, thus interfering with their normal functioning.

Never shall I forget the depression of those first three days of absolute fasting. I was a "dope fiend" minus his "dope"; and he who has ever seen one of these poor wretches will know how I did not enjoy life. But the fourth day all was changed. The "all-in" feeling that I had called hunger had departed. A great burden seemed lifted from my whole body.

From the just-mentioned phenomena I learned one of the most important lessons of my life. If it was hunger I had felt all those years when I went a few hours without fresh intake of food—if it was hunger I had felt during those first three days of my fast—why was it that all "hunger" left me on the fourth day of my complete fast?

Now, here is a conundrum! Why does a man feel "hungry" when taking too much food and lose his "hunger" when he has been three days without any food?

O, you would not guess in a year, unless you already know the answer. So I shall tell you. Too much food causes intoxication which first stimulates and then depresses the nervous system; and that depression, coupled with an irritation of the nerve endings in the mucous lining of the stomach by the products of food degeneration, which takes place when the digestive power is overwhelmed with too much food, improper food, or too frequent meals, is the cause of the so-called "hunger." Rest the stomach and eliminate the accumulated food poisons by fasting, and, within three days, the supposed "hunger" will disappear, the cause having been eliminated. Of course, if it had been real hunger that I experienced, I would have been really suffering for food after three whole days' total abstinence from food, but I was not. I was feeling better, sleeping better and thinking with greater clearness, and my heart was beating with greater regularity, my nerves more steady than they had been for many years. Moreover, this improvement continued to be augmented for two whole weeks. It was at the end of those two weeks that I kicked the "old man with the scythe" off my porch and I have not seen him since; nor do I expect to see him for many years yet to come, barring accident.

However, I kept up my fast for another week, merely adding the juice of an orange to the two glasses of water each hour that I had been drinking during the fast.

At the end of that three weeks' fast my tongue was clear, my mind was clear, my step firm, only a little heavy-footed and weak at the knees if I attempted to climb steps or hurry. But I could now climb the six steps up the terrace from the sidewalk to the level of my lawn without "seeing black," and I could, and dared to, hurry—two things that had not been true when I began my fast, nor for years before.

I then broke my fast upon dilute malted milk, two level teaspoonfuls to the glass of warm water every two hours; the next day three level teaspoonfuls; the next day four to the glass of warm water. On the fourth day after breaking fast I added four level teaspoonfuls malted milk to half a glass of dairy milk, then filled the glass with boiling water. Fifth and sixth days the same. Seventh day I added a dish of apple sauce, minus sugar, for breakfast; at noon I sipped a glass of warm, whole milk; at six p.m. another dish of apple sauce, minus sugar. Eighth day same as seventh only I added a teaspoonful of honey to the apple sauce at both meals. Ninth day same as eighth only I added a cupful of milk to the apple sauce and honey at both meals, chewing the milk and sauce well together. Tenth day same as ninth, only I doubled the amount of milk at noon meal. Eleventh day same as tenth, only I added to the noon meal one cupful of Roman Meal porridge, eaten with top milk and no sugar. After that I gradually changed my dietary until I was taking about the same foods as are shown in my dietary in chapter twenty-three.

Let me say here that the breaking of a fast in the proper way is all important to its final success. Digestive function is under control of the reflex nervous system; it has no relation to the intelligence or will. When this function has been out of commission for several days through fasting, it can be only slowly restored to functional activity, and only the lightest burden should be placed upon it at that time, and very gradually increased from day to day. If this care be taken it can never be said that a fast is injurious; rather that it rejuvenates and revitalizes the whole body.

All these weeks I had been taking one copious enema daily, and up until I broke fast two enemas daily, consisting of two quarts of warm water with four level teaspoonfuls of table salt dissolved in it. I now stopped the enemas entirely, since the Roman Meal* and fruit kept my bowels active and thoroughly emptied three times a day—that is, after a few days I began to get this result. In addition, under the influence of this bowel exercise, this active muscular work upon the part of the bowel muscles which was made necessary by the cellulose in the Roman Meal*, aided by the soothing effect of the bland and healing flax-o-lin which prevented any irritation from the harsh cellulose of the bran, my weakened intestinal muscles soon became strong, just as my arm and leg muscles did when I began to exercise them. And as the bowel muscles grew strong and the mucous lining of the bowel was healed by the soothing flax-o-lin all tendency to constipation disappeared.

However, it was not all plain sailing. I had yet lots of fighting to do before I was really well. I had numerous "slumps" and setbacks, mostly due to my haste to be well and my failure to see that a human body that has been abused for so many years cannot get well in a few weeks or months. I had to learn that nature never does work that way. She was taking abuse for years before she let me down to the point of actual suffering. Now I must take suffering while she slowly built me up. It is thus that nature keeps the balance even.

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*Dr. Jackson Meal in the United States. (See footnote page 327.)

CHAPTER TWENTY-NINE

THE IMPORTANCE OF A LIFE-IMPARTING BREAKFAST.

I am now prepared to answer the question with which chapter twenty-seven opens: "Why do I take a long walk, even in coldest winter, before I breakfast, then breakfast upon fruit or fruit and milk, etc?" And, while I am about it, I may as well answer the inevitable following question: "Why do I eat only a salad and some whole-grain food with honey at my noon meal, with sometimes sweet fruit and milk; and a salad or a salad and some lightly-steamed vegetables, some simple protein as cheese, beans, or nuts, with fruits as dessert, and a cupful of milk for my evening meal?"

I might answer those questions by saying, because I have come to believe in the simple life; or because I believe in a natural life—and a natural life must be a simple life—and a simple life, because it is natural, must be a healthful life. That answer would be a good one and true. And I have found that the simple, natural life does keep me well—abundantly, thrillingly well.

But I also want to give my reasons why the simple, natural life keeps me well.

Perhaps, or should I say positively, the greatest mistake of civilized people is the eating of too much food. At any rate, the three great errors of civilized mankind are: too much clothing or too much protection of the skin, too little physical exercise, and too much food.

The very plenty of foods and the system of exchanges through large accumulations of stores, together with the three regular meals timed by the clock, thus made possible, result in too much eating; the eating of far too much food.

Primitive man had no such regularity of eating. He first had to go out and find his food—exercise before eating—and then to eat it. Thus we see exercise before eating is a racial habit and has its physiological use in the body. The exercising before eating prepared a demand upon the part of the body's cells for food. And this natural demand, as a result of actual need, ensured the best and most prompt utilization by the body of the food when eaten; ensured prompt and complete digestion; no unnatural fermentation or putrefaction or other degenerative processes taking place in the ingested food.

Since the man we are considering was a primitive man, and, therefore, not forehanded, but only sought food when hunger impelled him, he naturally made use of foods in their natural state, in order to quickly satisfy natural hunger. And since primitive man was almost certainly a non-flesh-eating animal, his breakfast would have to be from the vegetable kingdom. And since, of all the foods of vegetable origin, fruits can be the most quickly turned into body energy, it is almost certain that the very high quality of instinct that early man must have had to enable him to rise from the brute class must have guided him to eat fruit for his first meal in the day—when fruit could be had—then other vegetarian foods as nuts, roots, grains or seeds and herbs, when fruits could not be had.

Yet, eating this kind of a breakfast had not prevented the evolution of that primitive, instinct-guided, man-like brute into the observing, reflecting, thinking, reasoning creature that we now know man to be. Nor had it prevented him evolving into the most complete anatomical and physiological perfection that the race has ever achieved, ages before the history or even the proto-history of the race begins.

It was hard for me to break away from the thought of "lots of good nourishing food" for breakfast, in spite of my conclusion, as just recited: "good nourishing food" meaning always plenty of flesh food. Why, I would argue, did man have canine teeth if he was not intended to eat flesh? And, like a lot of other people who want to eat meat and to have some good reason for their action, I could not get over that poser, until one day some spook popped the answer into my head. "Sure," said the spook, "man was intended to eat meat or he would not have had rudimentary canine teeth, just as the male man is intended to nurse his babies because he has rudimentary nipples and breasts." It came to me "just like that." And then I laughed the silly idea out of my mind. I (or we) had two babies at that time—pretty well grown I admit—yet there was a time when they nursed the breast. If there was anything in the canine teeth bogey I should have, at that time, nursed those babes. But, since I never did, because I never could, and neither could any other male suckle his babes, yet the babes got on and got on well without, I realized that this "rudimentary" finger post was not a finger post at all. For if the rudimentary nipples and breasts could give such a wrong hint as to proper human conduct, why not the canine teeth?

So I left the old question there by concluding they did give an improper hint and that if the human canine teeth mean anything at all it is probably one other instance of the super-provision of nature, a provision qualifying man the better to live off animal flesh in case of the failure of his natural foods. And when I learned that some of the huge anthropoid apes, whose teeth are very much like those of man and exactly the same in number, have large canine fangs, several times as large as are those of man, yet they do not touch flesh as food but live upon fruits, roots and nuts, I knew that the meat bogey no longer existed for me. Nor should it for anyone.

Then, as I thought on, I realized that as no animal body can possibly take its body-building materials directly from the soil but must obtain them primarily through vegetable sources, living organisms which have the power to transform inorganic, earthy matter into organic or living matter, I saw that, primarily, vegetation formed the basis of all animal nutrition; for if there had never been any vegetation there never could have been any animal life.

As I thought on and considered how the ox and the horse, the bear and the elephant, and other animals noted for their size, strength, intelligence and tenacity of life, can build and maintain their enormous bulk out of vegetable substance, or even out of fruit, as bears in the berry season do, I knew that I also could subsist upon fruit, at least for one meal in the day.

But why for breakfast?

Well, in the first place, it suits my circumstances. I could do quite as well by having my fruit meal at noon. But I had reasons for preferring my fruit meal at my first meal in the day. I had come to see that excess food, "lots of good nourishing food," could not build up my body and that it had only managed to build into my body disease by breaking my organs down.

I knew that for years I must have so taxed my organs that they must be reduced to a pretty low functioning capacity, if not actually diseased. I knew, too, that the condition of all my body cells must be but a reflection of the organs.

I was aware that at any time of life—at any time of life after growth is complete—the actual building and repair material required by the body is little, *but the vitalizing need is great.* I became convinced, as I still am—and more so—that the body-building substances can be found by chemical analyses in practically all foods; but the body vitalizing properties evade the most subtle science. They have never been contacted by the human senses, nor do I think they ever will be, any more than the vital principle of the human body will be.

Life-giving; life-sustaining; body-vitalizing properties seem to be non-material, therefore not a part of the material of the foods. They only appear to be associated with foods. Without these vitalizing substances, foods can only build the body; they cannot vitalize it or give to it resistance. That property of foods which vitalizes, gives resistance to, the animal or human body, seems not to be the substance of the food—which can only build body substance—but the life of the foods transferred to the body cell—*vitamins?*

Since only the Life Principle in foods can vitalize—make live—give resistance to, a *human body,* and it takes so little food to supply actual matter for the day's supply of building and repair material, what folly it must be to start off the day with a huge meal of *dead building material;* material that may stimulate or build the body's cells but cannot vitalize them.

Cell building, cell stimulation, cell vitalization: these are points in the science of nutrition seldom, if ever, thought about to the extent of differentiating them. And yet they must be kept in mind as distinct offices of food before the question of nutrition can be well understood.

How much more rational to start the body off each day fortified with foods that are really alive; so much alive that they have within them the subtle principle which, under proper conditions of warmth, moisture and sunlight, can generate a new life after its own kind. Such foods are fully ripened, fresh, or sun-dried fruits; foods cooked only in God's great solar oven. Plant these fresh or sun-dried fruits in the ground where there is a proper degree of warmth, moisture, sunlight and behold the miracle of nature, a new life from the old, because the Life—or Vital—Principle had not departed from the old.

But plant a portion of your "good nourishing food" in the ground, in the presence of warmth, moisture and sunlight, and what happens? The early putrescence of death.

And that is the best reason I have to offer why I take simple fruits for the first meal in the day—they are body-vitalizing, because actually living, vitalized foods. A whole-grain cereal, like Roman Meal, which contains the New Life germ of both wheat and rye, would do equally well, but it suits me better to take fruit; and eat Roman Meal at noon.

However, that is not the only reason. I eat my heaviest meal of the day between 5.30 and 6 p.m. This meal consists, generally, of vegetable broth (made with vegetable juice, butter, evaporated milk) ; salad; sometimes steamed potato and leafy vegetables; sometimes other roots as carrots, beets or turnips or parsnips; nuts or cheese; fruits. Fruits may be either acid, subacid or dried sweet, as raisins or dates.

Such a breakfast has ample building material to last me for twenty-four hours, but I am not going to make it last me for twenty-four hours. I am going to have another meal at noon which will contain considerable building material, and the fruits are far from devoid of building material, the milk I take with them being rich in building material. There is not the slightest chance that I shall be deficient in building material. If anything, I shall have too much. All I am in need of in the morning is body warmth, energy and that vital something that keeps the body animated, vitalized, capable of standing any physical strain that I can put it to and yet not tire.

In my noon and evening meals of the day before, I took in enough carbohydrate foods (sugars and starches), to furnish body heat throughout the night and most of the following day; and that in spite of the fact that I walked home several miles after my dinner the night before, and walked back that several miles again in the morning after an hour's exercise in the nude in the coldest room in the house and had a cold bath besides, followed by a brisk rub down and a pommelling of the whole body by the closed fists, altogether an hour and a half's exposure to whatever the temperature of the room happened to be when fully opened to the outside and without heat through the night. All of which is surely evidence that I have had enough energizing and heating foods, since I have not the slightest trouble, rather enjoy, exposing my nude body as just described in the coldest winter weather, even when away below zero; then dress without underwear and walk over four miles to my office, wearing only such outer clothing as would shock most young breakfasters upon "lots of good nourishing food" to contemplate: And I literally thrill with the contact of cold with my skin!

Then why should I take breakfast so soon as I am out of bed? And why should my breakfast be "lots of good nourishing food"? I do not yet need food at all, and if I take it I shall not be able to metabolize or utilize it, for I shall still have to utilize plenty of the food I ate at my last evening's meal. But to utilize the food that I took in the evening before consumes body energy stored up in the body cells derived from food of former meals, the energy thus used up to be replaced by energy derived from food taken the evening before. If I took no breakfast at all I would have ample energy stored in my cells from previous food for a good part of the day, but my body would soon begin to lag because of no food energy being present to replace that consumed that was already stored in the cells. This I have often proved by going without any morning meal at all. If I take no food at all I shall throw almost no tax upon my organs of elimination. If I take only fruit I shall do the same, therefore I rest my important organs of elimination and at the same time I obtain lots of energy to replace such stored up energy as is used by the forenoon's work, and I obtain what my body needs more than any other thing, vitality, Life, from the living fruits. Then I come to my noon meal, which is a carbohydrate and vegetable meal, specially adapted to vitalize and energize and carry me forward again to my heavy evening meal.

If I were to eat a heavy breakfast of "good nourishing foods" I would be calling upon my organs for the expenditure of energy to metabolize far more food than I could possibly have need for and I would throw a very uncalled-for burden upon my organs of elimination; thus I would probably feel less energized than I now feel if I take no breakfast at all.

The heavy-breakfast habitue will deny this, for he will be "all-in", have an "all-gone" or "empty" feeling almost so soon as he is out of bed. But I have already explained how I once suffered from those same symptoms of chronic intoxication, wrongly attributed to hunger. It is not hunger, but an abnormal craving for the accustomed "dope" derived from excess food.

Now you see why I take a long walk before breakfast and then breakfast upon fruit, or fruit and milk, or half-and-half. The body-building food of the day before has been rebuilding and repairing my body cells all night while I slept and was breaking down almost no body tissues by the expenditure of body energy. My body cells have been transforming my sugars and starches into soluble substances of the nature of sugar, easily transformed into energy and storing them in various parts of my body, especially in the muscles, where they can be readily obtainable for energy purposes as the body needs them.

What I most need in the morning is exercise to use up this stored energy-forming substance, create a natural cellular hunger for more such substance and then to take as food those living foodstuffs that can supply both energy to my cells and vitalize them with the vitalizing essence that is inherent within themselves. Such substances are the *living* fruits. The sugar native to them soon turns into energy for the cells, for it does not even require digestion, and the *life-giving principle* vitalizes those cells and gives resistance to them and to the body which they form.

But do not imagine that in fruits there are no body-building substances. Mineral salts are as much required to build the body's cells as are proteins, and no foods are richer in soluble mineral salts than are the fruits. And they have considerable high-class protein as well.

So by my early morning exercise I burn up all circulating food energy and all food debris that my body contains and thus prevent the accumulation of food debris within my body spaces to encumber the activities of my body cells. The very briskness of my walk increases my intake of oxygen through deep breathing and thus ensures this burning up of food debris, with its consequent body purification. I arrive at my office with my body tingling in every cell and nerve of my clean body—clean externally by the cold bathing and hand friction, and internally by burning up of the accumulated food energy and food waste. Every cell now is eager for food. I take it in its most vitalizing form, living fruits. The sugar in these fruits does not even have to be inverted. It can be transformed into energy at once, and along with that immediately released energy goes the body-vitalizing principle inherent in the living fruits.

Because my body is clean internally and externally my mind is clear, my physical energies superabundant and I am straining at the leash, champing at the bit, so to speak, anxious for the daily tasks. Can the reader not now see why? Also why I can, at seventy-five, work ninety hours a week at full steam ahead and really never tire?

Of course, what I have described is the ideal and does not imply that the same three meals taken in a day but with the carbohydrate and salad for breakfast and the fruit meal for lunch would not be compatible with perfect health or the development of immunity from disease. But if I were to resort to the carbohydrate and salad vegetable breakfast I should be extremely careful not to select a cereal food that was either refined or factory-cooked, for such foods are among the *"deadest"* foods we have. The vitalizing principle is destroyed by either refining or by cooking to the dry state necessary to prevent factory-cooked cereals from spoil-ing on the dealers' shelves. But they are also destroyed by prolonged home cooking.

The old-fashioned instructions to "cook overnight" were wrong from the dietetic point of view, for such cooking left no vitality or vital principle in the foods to be transmitted to the eater of them. And, too, the vital principle in cereal or other foods is killed by cooking and allowing to stand for a considerable time before eating. The old-fashioned Scotch porridge made out of oats that merely had the outer hulls removed and then ground between revolving stones, or the meals made by the still simpler tribes or races of men by crushing the grains between stones, then cooking them for a few minutes and serving them, may not have had all the daintiness of the modern porridge; but they had what our modern cereal foods, with few exceptions, do not have—vitality which they could pass on to the eater of them. The vital principle was neither refined out of them nor cooked out of them. The eater of such foods had what modern civilized people lack, vital resistance to disease.

By eating a breakfast of "Meal" containing the vital principle, and a salad, also well vitalized, I would be in exactly the same situation as regards vitalization as I would be by eating fruits, but neither vitalization nor energization would be so prompt, because these foods take longer in digesting.

Then if I partook of such a breakfast I would certainly select the fruit for luncheon. If I did not I would be taking too much food, provided I took my usual evening meal. And fruit or fruit and milk make an ideal lunch, for the same reasons I have given that it or they are an ideal breakfast. In the cereal and salad, and the salad steamed vegetables and protein meals there is abundant building and energizing material for the twenty-four hours and if I need anything more at all it is abundant vitality, and I get abundant vitality from fruits, taken either for breakfast or lunch.

This method of taking "Meal" and salad at breakfast and fruit or fruit and milk or half-and-half at noon will suit the ordinary household arrangements better than my own system and there is nothing to be condemned in it.

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*All references to Roman Meal throughout this chapter refer to Dr. Jackson Meal as sold in the United States. (see footnote p. 327).

CHAPTER THIRTY

THE VITAL IMPORTANCE OF ENTIRELY NATURAL FOODS.

I have written at considerable length of the direct and indirect disadvantages and impediments to the permanent health of civilized peoples, caused by their habits of continuously swaddling the skin in several layers of clothes, refusing the skin contact with light, heat, cold, etc.; taking hot baths in a hot, stuffy and steamy bathroom, and refusing to take vigorous muscular exercises out of doors, or at least in cold or cool, fresh air. And I have attempted to show how these may be compensated, yet allow us to live on in civilization.

But there is another habit from which the civilized peoples suffer, probably even more, viz., feeding habit.

In one sense it may be wrong to place more stress upon the food habits of a people, than upon other natural habits that are equally essential for the maintenance of permanent health. But in another sense it is permissible, for the reason that wrong food habits can probably be more quickly fatal than can wrong habits of treating our skin and the voluntary muscles. I say "probably" advisedly, since it is questionable whether, if the diet were perfect and the skin and muscles entirely neglected, the same person would remain disease-free for a longer period than if the diet and skin were neglected and the muscular functions perfectly developed, or than if the muscle and diet functions were neglected and the skin functions perfectly developed. We have seen that muscular exercise is essential to the perfect use of food, and that all the functions are interrelated, so it becomes, as I say, a question, since potentially perfect food is *not perfect* to a body the muscles of which are not well exercised.

However, there is no practical value in determining the matter, even if it could be determined. We know that it is of vital importance that the skin and muscular functions be kept normal by being constantly exercised, not only because these organs are mighty important organs, but their activity is the starting point of a huge number of reflex activities in other organs. And because we build our bodies out of the foods we eat, and the taking of food is the starting point of many other reflex functions, our feeding habits and the functions which feeding reflexly initiates, directs or controls in other organs must be of equal and thus also of vital importance. And that is enough to know—that our feeding habits are vital habits, because they set up a chain of reflex functions, which may be either normal or abnormal, and thus have to do with the extent to which we shall or shall not live.

But how are we to determine what foods ought to be eaten to ensure normal body reflexes and thus ensure permanent health? There is but one way, and that is to consult the great open book of nature. This book tells us all we need to know; and if we will but approach the great volume in the spirit of desire to know the truth, rather than to find support for some preconceived notion, we shall have little difficulty in learning the truth.

When we do approach this oldest of all books, what is the very first food lesson we learn? Even before we begin to read, we learn that in nature's book there is no reference to any improved, or refined, or prepared, or preserved, or pickled, or delicious, or dainty, or any other kind of food than purely natural foods.

No animal in a state of nature, including man, has ever known any other kind than natural food. Every animal ever created, including man, reached its anatomical and physiological perfection by eating no other kind of foods. No animal in a state of nature will eat any prepared and denatured or artificially-changed food if it can obtain the natural food. There is no animal in a state of nature, procuring its own foods from nature's own storehouse, but eats its foods entire. That is, all purely vegetable-eating or herbivorous animals eat the entire plant, or root or fruit. They do not divide and part, and they do not peel and soak, and cook, and drain, and cook and drain again; and salt and savor and season, and mix and mush and hash, and combine into a conglomerate of all kinds of incompatibles, impossible for the digestive fluids of any creature to completely digest and absorb. The instinct of the animal tells it that the different parts of the plant are needed to build its animal body perfectly: fruit, root, seed, leaf, etc.; and science tells why, by showing that these different plant parts build into themselves different and differing elements all needed by the animal to build and repair its different body parts.

Animals, from the beginning, ate the whole plant or whole root, whole seed or whole fruit. It has thus become a racial habit, and racial habits become laws from which the race or individual can only break away at peril to itself, as shown in "Basic Principles." And nature gave the animals an instinct so that they may not, *cannot,* break away.

The same thing is true of the flesh-eating animals, or carnivora. They eat the whole animal. If they did not, they would die for lack of important body-building and body-controlling elements, mineral salts, and vitamins. And this, too, is controlled in the lower animals by an unerring instinct.

In the foregoing, there is a whole chapter of knowledge taken direct from the book of nature. If we are looking for real or fundamental knowledge, we cannot do better than glean it here.

Instinct-guided animals make no mistakes. Nature, or the Creator, has seen to that. If animals, which cannot make mistakes, eat the whole carcass, either of vegetable or animal, and remain in perfect health, one thing is certain, that to do so is compatible with perfect bodily health.

But we do not find that it is only among the brutes, or so-called lower animals, led entirely by instinct, in which the practice of eating the whole vegetable or animal body prevails. This is the practice among the primitive tribes of mankind, the kind of men that our ancestors all were at some time in the more or less remote past—the kind of men our ancestors were, when they developed to perfection the human anatomy and physiology, and passed it on to us endowed with a Defensive Mechanism capable of defending our bodies, as it had theirs, from all disintegrating influences, therefore capable of defending us against disease.

And this is as true among the simple, primitive races, even when they live almost entirely upon animal flesh. The Esquimaux, who live almost entirely upon flesh, do not simply eat the muscles well drained of all blood, as civilized peoples do, but eat the whole animal, blood, brain, stomach, intestines, lungs, kidneys, liver, spleen, pancreas, muscles, cartilage, the lesser bones; practically everything but the large bones, hoofs, horns, hair, when the animal happens to have such. Moreover, they eat these parts mostly raw.

The animals thus eaten had built up their entire bodies by eating vegetable or plant matter in its complete or entire structural state. They thus obtained, from the soil, air and water, the elements necessary to build the various organs of their animal bodies through the intermediary of the plant; for the plant can take these substances directly from the soil, air, etc., and build them into its body structure, while the animal cannot. But the animal, when it eats the whole plant, does not build the various elements and qualities, contained in the various parts of the plant, into all of it own parts equally. For instance, the lime salts are mostly built into the bones and teeth; the sodium salts are mostly in its fluid tissues, the blood, lymph and bile; the potash in the muscles; the iron in its red blood cells; the vitamins in its internal organs, etc. To obtain all of these essential elements, the purely flesh-eating animal, whether human or brute, must eat the entire body of the animal. The animal (or man) that would not do so would soon sicken and die, if the entire diet was of flesh. Or it could save itself by eating the entire substance of some plant, but then it would not be a strictly flesh-eating animal. Of course, if it were wise enough, it could select parts of plants to compensate the deficiencies of its diet, resulting from eating only parts of the animal body. But this is wisdom possessed only in a degree by some men. To most men it is a closed book, and must remain so.

Another lesson we learn from nature is that foods should be eaten without seasoning of any kind. No brute animal eats condiments with its food. True, some animals have a liking for salt, and will go far to reach natural salt licks and obtain it. But this is not a condiment to the animal, used with other food, and thus having power to disturb digestive secretions, to act as local irritants, to induce overeating and thus induce the catarrhal condition which caused the symptoms that we recognize as manifestations of dyspepsia.

The Esquimaux absolutely refuse to taste salt, and this is true of many other primitive peoples. And these peoples generally refuse to use all other condiments or food seasonings.

That salt-eating is a habit, can easily be proved by ceasing to eat it for some months and then attempt to take it in the quantities formerly used. It will be found almost, if not quite, impossible to do so, with pleasure. What before seemed so delectable has become bitter and acrid. The same is true of all other condiments. We thus see that salting and seasoning our foods is an unnatural habit. Can it possibly be imagined that an unnatural practice, a thoughtless habit that has to be cultivated, a practice of adding to the food something that is not in any sense food; a practice that young children rebel against, and only slowly adjust themselves to by imitating their elders, can have any advantage over natural practices? Of course not. Nature is omnipotent and omniscient, for nature is the handmaiden of the Creator, or God. She makes no mistakes. She has made all edible foods most delectable in their natural forms to any but the taste that has been deliberately deformed by the long cultivation of vicious feeding habits, amongst which is the adding of strong seasoning substances to our food.

When we study the book of nature, we learn another invaluable lesson about feeding our bodies.

Animals, in their natural state, and wild or natural men, are in the habit, when it is possible, of making a meal out of one kind or one item of food.

The monkey climbs a tree and makes a meal of nuts. Or he climbs a tree and makes a meal of fruit. The wild man climbs a tree or sits under it and makes a meal of nuts, or a meal of fruit; or he digs his roots or gathers his herbs and sits down to eat them as a meal; or he makes a kill and devours it, or all he can eat of it, as a meal. He does not waste time gathering nuts, fruits, leaves and roots to eat with the flesh of his kill. He eats one thing, and all he wants of it. And then he is finished until the next meal time, which will come only when he is again hungry enough to impel him to go out and find it.

Even this quick glance into the open book of nature has taught us much.

Foods, just as they come from nature's hand, are capable of building perfect human bodies. They are doing so today, among so-called backward races, and they must have done so for many ages in the vast periods of the past, measurable only in geological time, during which the human race was being brought to anatomical and physiological perfection through the functioning of the Life Principle in conjunction with natural foods.

We have learned that food should be eaten entire, as our long-ago ancestors doubtless ate it while perfecting the anatomy and physiology of the human race.

We have learned that the use of condiments is unnatural; that their use is the result of a vicious habit that has to be cultivated.

We have also learned that nature's way of feeding is to take one, or at least a very few, simple, entire, wholly natural foods at any one meal.

We have now surely come to an understanding of what foods we ought to, at least largely if not entirely, use in order that they may act as the natural stimuli to the gastro-intestinal Primary Reflex Generating Centre, thus inciting to normal activity the entire group of reflex functions constituting the gastro-intestinal reflex chain.

It is inconceivable that the instinct-guided animals would be misled by nature into other than perfect body-building habits. If we had no other reasons for knowing this, we would know it because their bodies are, in themselves, so perfect physically and physiologically. The entire gastro-intestinal chain of reflexes in these animals must be perfect or their cutaneo-musculo-nervo-organic reflex functions would be at sixes and sevens, because they are all interrelated, and what affects one affects all. And since this gastro-intestinal reflex chain can only be perfect when set in operation through contacting natural stimuli, then simple, wholly natural foods and non-complex meals must be their natural stimuli. Must be, since that is their only type of food and meal.

The same reasoning applies to the primitive races of men, who are generally perfect specimens of physical manhood, their splendidly perfect bodies being developed only by the use of simple, wholly natural foods and non-complex meals.

The same reasoning must apply to the ancestors of our race, whose whole five chains of reflex functions must have been perfectly co-ordinated through contacting their natural primary reflex stimuli, or they never could have perfected those reflex chains, preserved them, and passed them on to us.

In this somewhat labored way, we arrive at the indisputable conclusion, that the natural stimuli of the gastro-intestinal chain of reflex functions are natural, entire foods, and non-complex meals.

If natural, entire foods and simple meals are the natural stimuli of the gastro-intestinal chain, then other kinds of foods and meals are not natural stimuli to this chain. All other kinds of foods, and meals, must be unnatural stimuli from which only unnatural reflex activities can be set up in the gastro-intestinal reflex chain. And these unnatural reflex activities must induce unnatural activities in the other reflex chains, because of their interrelations through the ramifications of the reflex nervous mechanism.

The conclusion we are now forced to adopt is that, in addition to exposing the skin to environmental contact, or at least to direct contact with light, cool or cold air, cool or cold bathing, etc., and to the taking of vigorous muscular exercises, we must follow the age-old food habits of our race, and live, at least in a large degree, upon the simple, natural, entire foods and non-complex meals of our primitive forebears.

I say "in large degree" for the reason that, while it would add greatly to the vigor of the ultimate race if all of us lived entirely upon the simple foods of nature, just as our race must have done in its developmental period, during which our anatomy and physiology were perfected and made permanent, it would probably play havoc with a large proportion of the individuals now composing the race. This would undoubtedly be true if the complete change were to be made suddenly. Nature is slow in her adaptations. She does not change overnight, even from a wrong to a right habit. Some natures, some races, could stand the sudden change, but some could not; just as some flowers, that have not had all the water they require for growth and health, can stand all the water you may care to give them, and some flowers under these circumstances would be injured. They must be brought back to normal, natural ways by easy stages. But if handled with rational care, the too-long-thirsty flower will return to perfection by, *in the end*, fully resupplying it with its natural food.

That natural foods act as natural stimuli to a whole chain of reflexes can be seen in the babe. The natural food of the infant is mother's milk. If the mother is normal and the babe nurses her milk, the babe's reflexes are all likely to be very normal. It will digest better, evacuate its bowels better, sleep better, be more contented and less fretful when awake, than it could possibly be under all similar conditions of life, except that its food be artificial food. It is commonplace knowledge among physicians that the breast-fed babe has several times the chance to live that the artificially-fed infant has, other things being equal. The reason is not only that its digestion is more perfect, but its entire chain of gastro-intestinal reflexes is more perfect. Since these influence all other body reflexes through the interrelations of the reflex nervous system, all of its bodily reflexes must, to that extent, be more normal. And, since all the manifestations of life are basically reflex, it can be at once seen that natural food, and only natural food, must be a boon to the babe, because it increases to an incalculable degree its chance to live.

If this is true of the human body in its delicately balanced first year of life, can it be said that it is not true in the second or third or tenth or twentieth or fiftieth or one hundredth year of life? By no means. The principle or law holds good, must hold good, throughout life. The infant fed upon the milk of its healthy, properly-fed mother, during its first year, then gradually introduced to natural whole grain, whole vegetable, and whole fruit foods, suitably prepared so as to maintain their naturalness, will live a more abundant life than could possibly be the case under the opposite conditions.

This will be equally true of the child whose skin reflexes are constantly kept normal by bathing or sponging it often in lukewarm, cool or cold water, permitting it to kick and play in the nude upon its bed in a well-lighted, well-aired, warm room, so soon as it is old enough; or better out of doors, when it is warm enough; by allowing it to toddle about, with nothing but a diaper as covering, so soon as it is old enough; by putting it out of doors barefooted, bareheaded and all but naked, to play in a clean sand pile in a corner of the backyard, so soon as it is able; by continuing to allow it to go about, as country boys always used to do, barefooted, often bareheaded, with a thin cotton shirt and overalls, as little clothing as the law allows, while growing up; by training it to swim and thus often expose the skin to the sun's rays, and the wind; by teaching it in its tender and easily teachable years to enjoy cool or cold bathing, as is very easily done by making of it a sport. The child's skin, thus trained to function naturally by contacting its normal functional stimuli, will continually set in operation the entire chain of skin reflexes, and these, interacting upon all other reflexes, will tend to normalize all the body reflexes, just as natural food must do.

But it will be equally true of the child whose muscles are symmetrically developed through the use of systematized muscular exercises. The child that is allowed to cry and kick in infancy at regular intervals—a child's way of exercising—and is later allowed to run and play at will, and later still is taught how to systematically develop its entire voluntary muscular system, will continually set in motion its chain of muscle-stimulated reflexes, which will in turn set in operation other reflexes, all of which, interacting with each other, will tend to normalize all body reflexes, just as will the proper treatment of the skin; and the use of natural food; and the proper direction of the mind in thinking; and the proper amount of sleep in a well-ventilated room.

But when these five reflex systems, or chains of functions, are all developed to full functional capacity, by contacting their natural stimuli, the body develops a Defensive Mechanism which almost must have the power to defend it against the attacks of all disintegrating influences, excepting those of many, many years. A body so developed from childhood will never have left the highroad to Permanent Health, the hoped-for destination of all mankind.

CHAPTER THIRTY-ONE

THE TREMENDOUS IMPORTANCE OF MENTAL AND EMOTIONAL CONTROL.

In addition to the four Primary Reflex Generating Centres that come into play almost at once following birth, there is another reflex generating centre in the mind, which I call the mental or emotional.

I realize that this centre stands, in a sense, in a different relation to the body than do the skin, muscle and food reflex centres, for these others all bear a definite relation to a definite organ or anatomical part, while the mental or emotional reflexes do not. True, the functions of this chain bear a definite relation to the mind—hence mental—but what is the mind? It is not an organ. Yes, the mind bears a relation to the brain, but the mind is not so definitely related to the brain as the other reflex chains are to the skin, muscles and the digestive tube. The mental and the slumber reflex chains would seem to be more in the same class.

However, we know the brain must have some part in mental impressions and operations, and an important one, therefore in the emotions; but that the brain originates thought or emotions cannot be demonstrated, at least as definitely as that cold, contacting the nude skin, causes the superficial bloodvessels to contract and the arrectores pilorum muscles to shorten and thus condense the cells and layers of the skin and make the hairs stand erect upon the skin; or that contraction of the voluntary muscles will force the blood along against gravity towards the lungs and heart, relieving the backward pressure of the stagnating venous blood against the capillaries.

On the other hand, it would appear as if practically all reflex activities of the body can be affected or influenced by the emotions. Moreover, there does not seem to be any one reflex activity or function entirely dependent upon the emotions. Nor is it apparent that there exist any natural physical stimuli with which some organ must come into contact before the emotional reflexes can be set in operation.

However, since these reflexes are so closely associated with mind, and notwithstanding the mind is not an organ, I attribute these reflexes to the mind for the sake of definiteness. For similar definiteness, therefore, I shall treat the mind as if it were a definite organ, and speak of it in its reflex connection as the mental or emotional Primary Reflex Generating Centre, and the chain of reflexes which emotions have the power to induce, as the mental or emotional reflex chain.

Now, it is of little practical importance whether I am right or not in the position which I have given to the mind as a Primary Reflex Generating Centre. What is of practical, almost vital, importance, is that we recognize the existence of this reflex chain, and realize its important role in the maintenance of permanent health.

In the closing paragraph of the previous chapter, I stated that "when these three reflex systems or chains are all developed to full functional capacity, by contacting their natural stimuli, the body develops a Defensive Mechanism which *almost* must have the power to defend it against the attacks of all disintegrating influences, excepting those of many, many years."

Were it not for the existence of this emotional reflex chain, I would have not so qualified that statement. I would have made it positive.

Though it is a condition almost entirely unlikely to ever present itself, yet, theoretically, it would be possible for the skin, muscle and gastro-intestinal reflex generating centres to be in perfect contact with their natural stimuli, and yet, through the counteracting effects of disturbing emotional reflexes, the Defensive Mechanism be thrown entirely out of gear.

That is why the wise physician tries so hard to induce the proper mental attitude, in his patient, towards his sickness or disease.

Perhaps the physician does not think of emotional reflex chain at all, but he knows that a hopeful attitude, or even a determination to get well at all costs, has a most favorable effect upon the outcome of some critically diseased state.

Neither does the Christian Scientist nor the Mental Therapist think of the emotional reflex chain of functional reactions that flows from the proper mental attitude; which, in all these cases, has produced the favorable therapeutic effect and cured the patient, when cure has been the fortunate result.

Almost everyone is familiar with cases of severe illness, pronounced hopeless by careful and able physicians; and yet these cases have recovered in spite of the fact that every physical factor connected with them warranted the fatal prognosis. Such recoveries often serve to cast undeserved discredit upon the physician. The physician can only judge by the physical manifestations. He cannot, in the same definite way, estimate the mental factors, and thus cannot know the possible reflex effects.

It is not such public knowledge, but it is well known to physicians, that there are sick people who have every physical reason for getting well, and as a consequence the case has been pronounced by the attending physician as having a favorable prognosis, yet death often terminates the case rather quickly; frequently to the undeserved blame of the physician. The physician could not see that an underground chain of unfavorable mental or emotional reactions would intervene to counteract and destroy the favorable physical reactions upon which his favorable prognosis had been made; that unfavorable emotional chain too often set in motion by well-meaning, interfering friends.

It must already have become evident to the reader that there are two types of manifestation of the emotional reflex chain, the favorable and the unfavorable.

I have already hinted that if all three of the Primary Reflex Generating Centres which have definite organic connection are functioning normally it would be extremely unlikely that an unfavorable chain of mental or emotional reflex reactions would occur. This is because the whole nervous system, and not alone its great central exchange, the brain, takes part in mental and emotional reactions. And when the whole three Primary Reflex Generating Centres connected with the skin, the muscles and food canal are functioning normally, the nervous mechanism, including the brain, is almost certain to be fully-functioning also, in which case no untoward emotional reactions can occur. Hence the vital importance to the mind and its emotions of naturally stimulating the skin, the muscles and the food canal.

Nevertheless, it is possible for persons in *apparently* perfect physical health to become ill and finally diseased, the first abnormal reflex reaction *apparently* having been induced by an emotional strain; the sudden tragic death of a loved one, or of a very dear friend, or some other shocking or depressing or tragic event.

This brings in the will, then, as a highly important factor in the development of permanent health. The will must be trained to close the mind against unfavorable impressions and thus inhibit the development of an unfavorable chain of reflex mental reactions, that will, through the interrelations of the reflex nervous system, be transferred over to the physical or organic side, depressing all the reflex chains, and thus depress and disturb, possibly destroy, all organic function. The healthy mind in the healthy body can easily close itself against unfavorable impressions, if it will; but at times it does not will. It does not always will for the reason that it is not informed regarding the dangerous organic and systemic reflex effects resulting from allowing depressing mental impressions to obtain a hold.

It is an old story to most persons that fear can paralyze, and grief, fear, anger, or worry, if great enough, can kill. All of these are emotions. They have no direct connection with any organ. They pertain to the mind, and the mind is not an organ. Yet they can be so great an influence upon the organs as to paralyze the function of vital organs—the heart for instance—and kill the body.

This inhibiting, or paralyzing, effect is never by direct action upon the vital organs, but the effect is reflected over from the mental or emotional side to the physical or organic side through the interrelations of the reflex nervous mechanism.

The will, then, must be trained to control the mind to admit favorable and exclude unfavorable impressions, to harbor only pleasurable and therefore constructive emotions, and to spurn all depressing and, therefore, destructive emotions.

What emotions are pleasurable and constructive? Everyone can, of course, best answer that question for himself. Generally, it may be said, that laughter, cheerfulness, confidence, trust, kindness, love, generosity, charity, fearlessness, courage, hope, reverence are constructive; while distrust, greed, envy, jealousy, discouragement, irreverence, hate, anger, fear, worry, anxiety, weeping, cruelty, faithlessness are destructive emotions.

The former are constructive because they set in motion a chain of stimulating, or favorable, reactions which are reflected over to the physical or organic side, aiding organic functions, because they operate in harmony with the natural physical stimuli existing in environmental contacts, muscular contractions and natural foods. It is when the three organically based primary reflex chains are all fully functioning, through their normal contacts with natural stimuli, existing in the environmental contacts, muscular exercise and natural foods, and the emotional and slumber reflex chains are also functioning constructively through the generating or controlling influence of some pleasurable emotion and regular sleep in a sufficiently ventilated room, that the body is immune from all disease. Such a body has definitely arrived at its hoped-for destination, "Permanent Health."

CHAPTER THIRTY-TWO

THE SLEEP AND EMOTIONAL REFLEX CHAINS.

I am entirely conscious of the unusual claim with which the preceding chapter closes, also that there are many who will scoff at it, because of its unusualness, rather than its lack of truth.

However, this book is not written for that comparatively mindless type whose attitude almost invariably is that the conventional must be right and the authorities cannot be wrong.

If the conventionalist and the authority-worshipper could only be awakened to the true import of the constantly changing attitude of the so-called authorities from year to year he would surely cease to rely upon any authority and begin to observe and think for himself. And when one does think for one's self, fearlessly and relentlessly casting all preconceived or inherited ideas into the crucible of thought, he cannot help concluding that nature did intend us to be well, and, therefore, must have made some simple provision that we may be well. Yes, nature's provisions are always simple. And what simpler provision could kind old nature make than that we cease to do as we choose and constantly do as we ought; unless what we choose to do also happens to be what we ought to do.

O, if moralists and religionists could but grasp the significance of the implication in this thought of making our daily living habits conform to what they ought to be instead of what we may happen to want them to be! What a basis for the erection of a moral and religious life—a life of spiritual elevation rather than ritualistic formality—would be laid if from infancy children were not asked the question, "Don't you like it?" in relation to foods, exercises, clothes, etc., but told lovingly and yet firmly that such and such conformed to the law of nature or of God and, consequently, it must be done! How the little lives would thus be shaped for duty rather than for desire! And think of what that might mean to this old world of blindly-led human beings.

But our religionists and moralists have missed the connection that must exist between the daily living habits and the spiritual development, for the reason that they have conceived, wrongfully, of the body as a sinful thing that must be repressed, contemned and neglected as a thing of little worth; and in so conceiving they have missed the great vehicle given us by God for the training of the individual personal ego or soul allotted to us from the All-Soul or Oversoul. A little thought ought to have given those who framed our religious thought-structures a hint that this so-marvelous body was not given to us for the mere purpose of treating it with contempt and neglect until it has induced within us thought-tendencies that interfere with the best attainments of the soul, and then attempt to crush and crucify the body as a thing of sin—an act blasphemous in its very nature, for is not the body also made by God? In the Prologue to the first part of this book I have shown how this must be true, therefore is true; and I urge the reader to re-read that Prologue in order that the thought that his or her body is a God-built thing may be so impressed upon the mental consciousness that it shall be revered as a thing worthy of the highest regard, because a God-fashioned thing. A God-fashioned thing intended to be diseased? Preposterous! Blasphemous!

But I must not be led into making of this a treatise upon morals, save inasmuch as morals are bound up with the daily living habits, as hinted at in the preceding paragraph.

In an earlier chapter I have shown how we may learn to do as we ought by studying the rules plainly written in the open book of nature. I would only add here that we must not be affected by that species of fatuity that would suggest that mankind are not subject to the living and health conditions imposed upon all other animal species.

All animals in a state of nature, including mankind, are disease-free. Civilized mankind, and their domesticated animals, are the only animals living unnaturally-coddled lives, and they are also the only animals extensively diseased. The inference ought to be obvious. Cease coddling, return to primitive simplicity, in our living habits, or their equivalents, so that all body functions shall be naturally stimulated; and disease, the result of coddling and unnatural living, must disappear.

In this book I aim to show how this may be done. In my own case and that of hundreds of my patients the system of body-rejuvenation has worked what seem to be like miracles, but are only logical results explainable by nature's laws.

As the reader already knows, I have associated those laws of nature with a human Defensive Mechanism, consisting of five chains of reflex functions, three chains of which I have already definitely discussed; viz., the skin, the muscle and the food chains, and in chapter thirty-one I touched upon the important emotional chain. But I must not stop with a consideration of the three great chains referred to. I must give some more definite consideration to the other two: the slumber or sleep and the mental or emotional chains.

I have left definite consideration of these two chains to the last, for the reason that, although they are important in themselves, they lose some of their importance when considered together with the three other chains. This is for the reason that if the other three chains are kept normal by keeping them regularly in contact with their natural stimuli, and thus fully functioning, the sleep and emotional reflexes must incline to be normal without much care being given to them.

Untroubled, restful, refreshing and recuperating sleep seldom waits upon a human body for any great length of time when that body has been devitalized and chronically poisoned by eating devitalized and unnatural foods, and the body becomes weighed down with an abnormal chain of functions, which such eating always entails; when the chronic poisoning resulting from the eating of such foods is augmented by a non-functioning skin because the skin has been swaddled and coddled until its great primary eliminative and protective functions, with their chains of reflexly-initiated, directed or controlled functions, have been more or less impounded and chained to functional inertia; and the oxidizing and tissue-cleansing effects of systematized physical exercises have been prevented by the total absence of vigorous muscle exercises which force deep breathing, tissue oxidation and activity of the skin glands; and the wearing of impervious clothes has compelled the rebreathing by the skin of such poisonous products as the passively-functioning glands have passed to the outer surface of the skin.

Surely, too, under similar abnormal body conditions, only the stupid would look for normal, hopeful, optimistic, onward-looking and upward-looking mental reactions; carrying the whole man, body and soul, forward on the pinions of an ennobling faith to that perfection of contentment that comes with bodily perfection and health.

Real faith is an irradiating, vitalizing, electrifying force. We are apt to confound resignation with faith. They are opposites. Resignation is the antithesis of faith. Faith is positive, commanding, conquering, over-riding all obstacles. Resignation is negative, submitting, yielding. The man or woman of vital, living faith does not need to be resigned.

And only the highly-vitalized body can possess that vital, positive form of faith that conquers the situation to which the devitalized mind in a devitalized body becomes resigned. Moreover, only the body that lives in accordance with nature's or God's laws or rules of living can hope to hold that all-conquering faith for the full period of life-expectancy of such a body under natural living conditions.

There are bodies endowed by so mighty a fund of vitality that, in spite of living habits, they can hold this vital faith for many years; a period long enough that, to many, it appears as a rather full-length life; then lose it and resign themselves to what, for such a naturally vital body, is in reality an early death. Whatever may be the attained length of life in these so-vital bodies, by nature, it is probably only a part of what it might be, were their body-building governed by ought rather than desire; and throughout that greater period to which they might, and therefore ought to, live, their all-conquering faith in themselves, in their personal powers and in their great destiny as sons of God, will have been maintained. Nor will this form of faith, with physical health for its foundation, have lessened faith in God. Rather will it have given clarity, purity and understanding to that faith.

Those who think otherwise are confounding the mere inherited brute strength associated with a burly physique with vitality. But these are very different things. The low-browed Samson is rarely possessed of a very spiritualized faith, but neither is he often endowed with an abundant vitality. Samsons are seldom long livers, and just as seldom do they accomplish much in the world in which all-conquering courage has played any great part. We must get a different view of vitality than that it is related to physical strength. It may, indeed, be associated with physical strength, but it is not related to it and may exist where physical power is noticeable by its absence. Vitality means life, or the power to live—to resist and persist. Where this power is largely developed, or is naturally possessed, there is always high faith, self-reliance, moral and physical courage, the ability to sweep aside or stem all difficulties, and to fight on and on undaunted until the seeming impassable barrier yields to the might of faith, leaving an unobstructed pathway to further progress and greater success.

Well, sleep and the emotions each play a mighty part in the development and maintenance of the vitality which, as a positive force, leads the possessor of it on by the lamp of faith to the conquest of the circumstance or condition that, to most men, is unyielding and unconquerable.

But if sleep and the emotions play such a great part in the development and maintenance of vitality and resistance, so does the proper stimulation of these other three great reflex chains by contacting their natural stimuli play a great part in the induction of constructive sleep and constructive emotions.

Sleep from which the sleeper wakes unrefreshed is a common experience among civilized people. Sleep from which the sleeper can with difficulty be roused, after eight or nine hours, and which hangs over as a yawning, heavy influence for some hours after waking, is another common experience. Sleep that is disturbed by indefinite shapes, wild or distressing dreams, is another common experience. There are many kinds of sleep from which the sleeper wakes without the consciousness of being *revivified,* revitalized and ready to go forward with zest to the day's task, let that task be what it may. All such is non-constructive sleep and is not the kind enjoyed by the person whose blood is free from poisons absorbed from the food canal because of the practice of eating too much food, incompatible foods and devitalized or dead foods; and whose blood is also free from abnormal amounts of toxic substance resulting from the breaking down of the body's functioning cells, because such toxins have not been oxidized by the intake of oxygen resulting from deep breathing following vigorous muscular exercises and neutralized by food alkalis.

But let one feed upon the kind of foods just mentioned, so that the food poisons accumulate; and refuse to properly stimulate elimination by the skin so that cellular poisons accumulate within the body tissues; and at the same time refuse to burn up those wastes by vigorous muscular exercises, and, soon or late—generally sooner than later—the sleep becomes disturbed after the manner already described, and thus ceases to be constructive. And it is a commonplace observation that when sleep is not completely refreshing the emotional nature is disturbed. Nothing gives a greater distortion of mental images and impressions than disturbed and unnatural sleep.

But the converse is also true. Nothing is so apt to disturb one's sleep as unpleasant emotions; and nothing is so calculated to disturb either the sleep or the emotions as the tissues filled with toxic substances and cellular debris that ought to have been excreted, all due to coddling of the skin, refusing to vigorously exercise the voluntary muscles and crowding the digestive tract with unnatural and devitalized foods.

I have, for convenience, treated the slumber and emotional reflex chains as if they stood in the same relation to the other three chains as these chains stand to each other, although fully recognizing that they do not so stand. Both are related to the mind, but the mind is not an organ; and the other three chains, the cutaneous, muscle and gastro-intestinal, each relate to a definite, separate organ, which is its Primary Reflex Generating Centre.

Each of the three latter centres is dependent for its natural stimuli upon actual physical contacts. The slumber and emotional chains are not; yet each is a centre from which a whole chain of body functions is affected, for good or ill. I have given to each the position of a Primary Reflex Generating Centre, yet sleep and the emotions are not things, they are effects and cannot be Primary Reflex Generating Centres, at least in the independent sense that is true of the other three centres.

For example, it is conceivable that one may properly stimulate the skin by environmental contacts, the muscles by vigorous physical exercises and sleep the normal regulation time in a well-ventilated room and do one's best to think positive, optimistic, affirmative and constructive thoughts, and yet, through eating unnatural and devitalizing foods, disturb the entire chain of functions controlled, or influenced and modified, by the state of the digestive function: And through the interrelations of the reflex nervous system, to a certain degree, disturb all other body functions, including sleep and the emotions. And any other of the three may be substituted, in the suppositious circumstances, for the digestive function without changing a single feature of the conclusion.

This, I believe, is not true in regard to the slumber and emotional reflexes.

Although it is conceivably true that the emotions may be disturbed, to the point of being abnormal, by some tragic occurrence in the life of a normal individual, thus setting up an adverse or abnormal chain of reflex functions which would reflexly depress all body functions through the reflex nerve ramifications, I do not think this is likely to be the case if, at the time, the whole five chains of reflex functions were at full normal functional power, because of the normal stimulation of all the Primary Reflex Generating Centres by contacting their natural stimuli. A body so completely normalized would resist and support the most cataclysmic shock. In such a body the constructive emotion of faith in the divine purpose prevents even the cataclysm from suggesting destructive thoughts.

Sleep occupies a similar semi-dependent relation up to the point where it might be deliberately, or by some unusual condition, prevented. It would then very soon become a Primary Reflex Generating Centre for the propagation of abnormal functional activities throughout all the reflex chains, the first one to be affected being the mental or emotional chain.

It also must be true that the devitalized and depressed body, by the abnormal sensations that it evolves, is responsible for suggestions to the mentality that are negative and destructive, and that the mind passes these suggestions over, in the form of abnormal stimuli, to the whole chain of functions under its control, and these reflect them over to the other reflex centres and thus the entire body is negatively, or destructively, influenced through the mind. But note this mental influence was primarily due to the negative physical state, and, in one sense, might be considered as part of one of the other three chains. However, once it is stimulated and set in operation from any source, it then becomes so effective in control of other functions that I have called it primary in itself.

The practical attitude, then, to assume is that both sleep and thought can, in effect, act as Primary Reflex Generating Centres, but the nature of their reflex activity will be more or less dependent upon the functional perfection or imperfection of the three other chains.

Realizing that restful, undisturbed, rejuvenating, "balmy sleep," and emotions that are joyful, grateful and optimistic are positive and constructive, and that both that kind of sleep and that kind of emotions are largely dependent upon the functional perfection of the other three chains; and that disturbed and fitful, too-heavy or "dopey" sleep and unpleasant emotions are negative and destructive, and that both that kind of sleep and that kind of emotions are largely dependent upon the functional imbalance of the other three chains, because of their unnatural reflex stimulation, we ought to endeavor to maintain functional perfection in those three great chains through the means intended by nature.

Practically, it will make no difference to us how dependent the sleep and emotional centres are upon the kind of stimuli they receive if they do act as Primary Reflex Generating Centres to a long chain of other functions after they are once stimulated. What is important for us to understand is that when the body is permitted, or compelled, to become devitalized and self-poisoned through our refusal to treat the skin, the muscles and the food canal as nature intended them to be treated, and thus set up negative or destructive reflex chains of functions in all three chains, then the sleep and emotional reflex centres are sure to receive unnatural stimuli and both the nature of our sleep and our emotions will be destructive: And as Primary Reflex Centres they will set up negative or destructive reflex chains; thus they must lower our bodily vitality and reduce our resistance to all body-destructive processes or disease.

Knowing this fact will enable us to use these two reflex chains as a sort of health barometer; for if we begin to find ourselves not enjoying refreshing, revivifying, vitalizing sleep from which we wake rejuvenated and thrilled with enthusiasm for the daily task; or if our emotions tend to the negative or depressive; petulant, hypercritical, gloomy and foreboding rather than the positive and pleasurable and elevating or exalting kind, then we will know that we are neglecting our other reflex chains, and, sooner or later, we shall pay for that neglect in a depressed vitality and, therefore, in the loss of our natural immunity from disease.

There is one other fact we must not lose sight of, that, since by the proper stimulation of any reflex generating centre by its natural stimuli, as the skin chain by environmental contacts, or the muscle chain by vigorous physical exercises, we may set up the beginning of a benign cycle that tends to normalize all body functions, so may we, by determining to allow only optimistic, elevating, affirmative, positive and constructive thoughts a place in our minds, inaugurate a benign cycle affecting all body functions through the ramifications of the reflex nervous system which interrelates all functional chains; and thus tend to evolve that all-dominating, all-conquering emotion of faith to which I made reference a few paragraphs back in this chapter. Unfortunately we can also inaugurate a malignant cycle by thinking negative, destructive thoughts.

Before closing this chapter, I would point out that the cleaner and purer and more alkaline the blood and tissues are made, by natural means, the less sleep seems to be required and the more readily can a sleeper become thoroughly awake when the cloud of sleep is lifted from the mind. There is, of course, a physiological explanation for this phenomenon. One reason for sleeping is that the body, while at absolute rest, and consequently not manufacturing fatigue poisons which depress and tire out the body cells by their presence, may have the chance to completely eliminate the fatigue poisons that have accumulated during the day, and thus recuperate its waning powers. The chief cause of sleep is these same fatigue poisons.

Of course, it will be easily evident that if the body is subsisting upon excess acid foods, or foods that add largely to the food debris floating in the blood, the body cells must struggle with these foreign and unnatural products and thus become more quickly and completely fatigued than will the body that does not have to struggle because the foods it uses are natural and alkali-producing foods, and no foods are taken in excess.

I have become so convinced of the importance of this knowledge that, in my own case, when I feel the least bit "dopey" in the early morning after five hours' sleep, I know that I am accumulating fatigue poisons and I immediately set about "putting my house in order" by fasting a day, or at any rate reducing my diet to fruit, or fruit and milk, for two or three meals or for a day or two—usually taking an enema. If I do not take these precautions, I find I lose my desire to run and walk fast and my natural tendency to "cut up" and prank, and in the end I develop a headache if I persist in eating my usual amount of foods.

I would not imply that I have to take these measures very often, for I do not, since I try to be careful all the time of the amount and kind of my foods. But on the rare occasions when I do feel this condition coming on, manifested at first perhaps by a slight heaviness in the legs and feet, or a less sprightly feeling, or a lessened desire to wake up and exercise in the early morning, if I then take time by the forelock and fast, or go upon a fruit diet for a day or so, I soon feel like kicking up my heels and can arise at any early hour, exercise and bathe, and so soon as on the street feel that I must run a few blocks. The alkalinizing of my blood by the use of fruits and milk has lessened food debris and eliminated the fatigue poisons, vitalized my body cells so that the whole conscious sensation of my body is vitality, life, expressed as clarity of mind and vigor of body not easily restrained.

When in this state, I cannot ever sleep over five hours, and more often four hours have to suffice. Yet my body cells are so relieved of their fatigue poisons that I am able to so completely relax* for another three or four hours that it seems to be almost equal to sleep, as a restorative of the body's powers, and as an eliminator of fatigue poisons. Another peculiarity of this experience is that the days that follow these four-hour sleeps are, mentally and physically, my most effective days. And the absence of fatigue poisons, with the normal alkalinity of the blood, explains this phenomenon. It is really what one ought to expect.

Thus again we see that the effects of the normalized, organically-based great chains conspire to give direction to the Primary Reflex Generating Centre tied up with sleep. If they maintain a clean body internally and externally and keep the blood alkaline, the effect upon the slumber or sleep chain of reflex functions is benign, constructive and vitalizing; but if not, then the effect is destructive and devitalizing and conducive to disease. All of which applies with equal force to thought and the mental and emotional reflex chain.

Perhaps I should go further and point out that there are two kinds of sleep, dependent upon two different causes —rather largely dependent upon two—for the exact causes of sleep have never been fully determined by science. First, there is natural or restful sleep; second, toxic or lethargic sleep. The cause of the first is fatigue, the cause of the second weariness. Fatigue is caused by mental or physical exertion within the physiological limit—that point where exhaustion sets in, or rather threatens, the point of tiredness. The causes of weariness are several—anything that increases the absorption of toxic substances or prevents their excretion from the body in normal amounts: (a) Exertion of mind or body beyond the physiological limit. (b) Overfeeding; too rapid feeding; incorrect or incompatible meals; excess acid meals made up of foods deficient in natural alkalis (see pages 100 to 102 and 405 to 408).

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*See chapter number forty-one concerning TENSION.

(c) Insufficient bathing. (d) Overclothing. (e) Improper use of the mind—permitting unhappy or destructive thoughts or emotions to occupy the mind, especially before dropping off to sleep.

Natural or restful sleep is characterized by a ready dropping off to a light and dreamless sleep, or if dreams occur they will be happy ones. From such sleep one wakes readily and once awake is all awake, bright and eager for the tasks of the coming day, whatsoever they may be. There is no mental or physical heaviness, no yawning or tired feeling, but a sense of repose and a sense of the utmost fitness pervades body and mind.

Toxic or lethargic sleep is characterized by everything the exact opposite, save in the one fact that it comes on readily, but too readily. Its victim almost sleeps before the head touches the pillow. Dreams are frequent and generally unpleasant or even dreadful. The sleeper is wakened with difficulty, and generally has to be wakened several times. When he finally is roused, he yawns and stretches and regrets the necessity for having to wake up and the duties of the day appear to him as tasks and not as delights. He often is not fully awake until on in the day, perhaps even as far as noon. His mind is apt to be clouded and not eager for something to engage its attention. Mental tasks are apt to bore such a victim, at least until late in the day. The thoughts of such a victim are apt to be gloomy and thus add to the unhappy condition by increasing the toxins in the blood and thus tend to increase the tendency to such toxic sleep. For it is quite true that there is no poison factory so capable of poisoning our bloodstream as that of the improperly directed conscious mind. Those who have read my book "MAKE YOUR MIND BUILD HEALTH" or my later work "MASTER GUIDE TO PHYSICAL PERFECTION," will understand why and how this is brought about.

Knowing the causes of toxic or lethargic sleep suggests its cure. The body muscles should be exercised to the point of tiredness every day, but never beyond that point. At least, the muscles should be exercised to the point of full, deep breathing in the open or at an open window, for ten to thirty minutes every day. Meals should consist of natural foods—or largely so—and foods should be thoroughly milled in the mill of the digestive tract—the mouth. Starches especially should be well wet with saliva before passing into the stomach. Meals should be made from compatible foods (see Chapter Forty-four), and at least eighty per cent. of the foods should be alkali-forming (see Chapter Nine). The habit of emptying the colon after each meal should be formed by going regularly to the commode after each meal, whether there is a "call" or not. It is especially important to cultivate the habit of emptying the sewer of the body, the colon, after the evening meal, so that during the sleeping hours the sewer poisons will not pollute the bloodstream. Lastly, the mind must be trained to banish every disturbing unhappy or distressing thought or emotion. The mind not at peace with itself and the world is a most potent poison plant and cannot be tolerated by one who would sleep the sleep that "knits up the ravell'd sleeve of care."

The best means I have found of inducing the peaceful mental state that helps to ensure normal sleep is to devise constructive suggestions to replace the destructive suggestions that are supplied to our cell intelligences making up the infraconscious mind and controlling all body functions, when we permit unhappy thoughts or emotions a place in our conscious minds. My method is to make use of a sort of ritual which I go over in my mind the last thing before I go to sleep. This ritual embodies constructive suggestions of a very elevating character, and, since the last thoughts of the conscious mind act upon the cell intelligences all during the sleeping hours, my mind thus becomes a poison-antidote factory instead of a poison factory, all the while my body sleeps.

My ritual consists of such suggestions as are contained in the following affirmation: "My Father, God, is good, all good. He, therefore, means for me all good. He must, then, mean me youth and health. I only need obey His laws." I bring into this word-form all sorts of variations and changes, then begin on another affirmation containing a similar constructive suggestion, as follows: "I am the creature of a perfect Creator. As such, I must be created perfectly. I must, then, possess the potentiality to become physically perfect and, therefore, always and naturally immune from disease. I only need obey His laws." This I follow by a similar constructive suggestion by invocation, as follows: "Let the way be opened for me to understand that the shortcomings and failings of my fellows differ from my failings only in kind and that in their places I would have failed exactly as they had failed, thus let the way be opened for me to cherish no enmity nor ill-will towards my fellows. Let the way be opened for me to have the intelligence to understand, the will to do, and the faith to expect results from doing those things that are necessary in order that my body may become physically perfect and, therefore, naturally immune from disease, a habitation fit for the indwelling of as much of the Infinite Life as constitutes the Reality in me."

I have referred in a previous chapter to the fact that at seventy-two I can work ninety hours a week and never tire. I think that without further comment the reason must be obvious. Yet, by a few days' careless eating or overclothing and under-exercising the voluntary muscles, thus failing to eliminate, I can bring back that old tired feeling. But I am done with tired feeling. I will not have it, because I do not need to—and neither need anyone else.

CHAPTER THIRTY-THREE

NOT NECESSARY TO BE PRIMITIVE TO HAVE PRIMITIVE HEALTH.

Now that we understand the broad basic principles, the living in harmony with which, or the underlying natural laws, obedience to which, must result in finding the pathway leading to the hoped-for destination "Permanent Health," what next?

Must we become primitive men to possess the primitive man's health? Perhaps only by doing so could we become as perfect physical types as are the primitive tribes of mankind.

But is it necessary that we become primitively perfect physically, in order that we shall be perfectly healthy — healthy, that is, in every cell, organ and body part? That must remain an incompletely-answered question, in so far as my answer is concerned; for I really do not know. There can be no doubt that if we live according to the laws of living established by the racial habits of our long, long primitive ancestry our physical bodies must be perfect. But nature is so bountiful in all of her endowments that there is ever a margin of latitude between the ideal and the tolerable in her requirements. It is for this reason that nature has given to us our Defensive Mechanism. Without such Defensive Mechanism even the primitive man would be sure to die before he even matured. But there is always existent, nevertheless, the law of functional potentiality which insists that body cells and organs be allowed to do the work —perform the functions—for which nature designed them, or they will become immediately subject to the penalties of the other law which says that if they will not, or are not permitted to, do the work for which they were designed they will be slowly, or even swiftly it may be, destroyed; which means eventual organic disease.

But there is also manifested throughout all nature another law, that of intermittency, or action and reaction;

work and rest; activity and repose; the one as essential as the other and essential to the other. Because of the existence of this inviolable law of nature, it becomes evident that while every body function absolutely must be performed, if the body is to be permanently well, it is just as imperative that there shall be periods of intermittence in the functional effort of every functioning part.

Tempting as it is to carry this philosophizing farther, I must refrain and be content with pointing out the law, manifested, as I have already indicated, in the fact that muscles do not need to be constantly exercised in order that they will be large and perfectly developed. In fact, constantly exercising them would mean their destruction. It is only essential that they be systematically and regularly exercised, but note that much is *essential.* Exercise and rest; activity and repose; that is the law. Muscles that are not exercised tend to disappear, to be destroyed. It is just as true of the brain; just as true of the power of speech; just as true of memory. Do not make use of any of these organs or functions and they tend to be destroyed. But *over*-use them and the result is the same.

Pathology knows two kinds of atrophy or wasting of body tissues: the atrophy of *dis*-use and that of over-use. The muscles that are over-used suffer in a way as disastrously as do the under-used muscles. Such muscles become rigid, not quickly responsive to nerve stimuli, and, if carried too far, a low-grade inflammation will supervene, and if still further carried on, the muscle fibres will be changed into fibrous tissue, and the contractile power of the muscle —its functional power—will disappear. Destruction again, but from over-use. An example is seen in the over-worked heart, crippled by striving to circulate the blood through contracted and rigid arteries when the arteries have become diseased. The over-worked brain and nerves will be similarly destroyed. Go as far as you like in studying the processes of the body and it will be found that this necessity exists for driving the organ at full steam ahead; then, so to speak, laying it up for a time for recuperation and repairs.

There is also another side to this question. Man is not all physical. He is mental and spiritual as well. The question, then, naturally presents itself—admitting that the primitive life would develop a perfect physical body, what would become of the mental and spiritual side of man living a primitive life?

There can be no doubt that if man gave himself up entirely to live the primitive life he would develop little beyond the physical only. He would become a magnificent animal, but that would likely be all. But for a man to become a magnificent animal is not to fulfill his so-evident destiny, which includes also mental, moral and spiritual enlightenment; and, through these, a consciousness of his kinship with Divinity.

It is only when the exigencies and rigorousness of primitive life have relaxed and all man's forces are not engaged in the mere effort to live that the mental and spiritual sides of man can find time and the opportunity to develop.

It would thus appear a part of nature's plan that as man is intended to advance mentally and spiritually, then the rigorousness of absolutely primitive life must also be relaxed, to allow time and opportunity for that mental and spiritual development.

Is this another reason why nature gave to man the margin of latitude between the tolerable and the ideal in her requirements, as established by the age-old racial habits of his ancestors? It would seem so. At any rate, this latitude exists. Man must and he must not. So long as man recognizes both of these margins to his limited latitude of volition he is safe. Man must do, and his each and every organ must do, everything, and perform every function that nature intended them to do and perform. To be fully competent, physically and mentally, man and his every function, organ or body part, must be exerted frequently and regularly, up to full functional power; do all the work of its own kind that it can possibly do, without overdoing. *Frequently and regularly man must exercise every bodily capacity up to the full limit of its power, inside the point where exhaustion is about to begin, if he would fully maintain every bodily capacity at its full working power, and thus capable of maintaining the body in its normal perfection of functional ability, or perfect health—permanent perfect health.*

But frequently and regularly does not imply constantly. Does this mean that man must constantly swaddle his skin with layer upon layer of impervious clothing and live in heated houses more or less constantly to protect it from the cold, etc.; that he must seek every possible means to avoid muscular exercise or exertion; that he must be equally zealous in finding foods that are tempting to his appetite and easy to digest? Does it mean that he can give rein to his emotions and his passions? No, it means that to a limited degree only he may do these things, and yet be permanently well; but he must recognize that limit, and he must frequently and regularly do the opposite. He must frequently and regularly expose his skin to the environmental contacts experienced by primitive men, his long-ago ancestors. He must frequently live, or at least work—exercise—out of doors: He must frequently and regularly exercise his every voluntary muscle. He must frequently and regularly seek and make use of foods as they come from the hand of old mother nature: And he must do all of these up to but never beyond his full capacity, that point where exhaustion is about to begin. He must also frequently and regularly relax, mentally and physically, subduing all emotion, and rest back in the warm embrace of the Infinite, knowing that all is well. He must do all of these things for the reason that all of them are commanded by the laws of his physical being established by racial habits that endured for ages; racial habits long enough continued to have become a law from which the race or individual cannot break except at great peril to itself.

CHAPTER THIRTY-FOUR

SICKNESS IS SIN—OR THE RESULT OF SIN.

We have now surveyed, in a general way, the great problem of human physical life, "how to be always well." We have learned that the Creator intended us to be physically perfect, therefore he intended us to be always well. We have learned, too, that since He intended us to be always well, He made it possible for us to be always well.

To the end that we may be well He supplied us with two easily comprehendable provisions: (a) a set of rules written large in the open book of nature; (b) a Defensive Mechanism consisting of five sets or chains of reflex functions, each with an appropriate set of natural stimuli which, if allowed to contact frequently and regularly the five primary reflex generating centres governing the five reflex chains, must ensure perfect functioning in every cell, organ and body part, and this must ensure a natural immunity from disease.

Because the Creator, God, made it possible for us to be well we are held responsible for the condition of health or disease manifested in our bodies. Thus sickness becomes sin, or the result of sin.

The body that is sick is a body that has sinned, because it has lived contrary to God's health rules or laws or commands, therefore contrary to God's will. The sick body, in other words, has lived as it chose rather than as it ought. Civilized man has become diseased because he has been guided by presumption rather than by reason or observation. He has presumed that ease, comfort, freedom from physical effort, luxury, having all one's material desires and passions gratified are the supreme desiderata of life. Yet the most rudimentary observation and reason point out that effort is the law of growth; and overcoming by the constant exercise of will and resistance is the only way to develop resistance in the physical body as well as in the moral and spiritual fibre; while yielding to the calls of ease, desire, luxury is the one sure way to physical, mental, moral and spiritual softness, physical dethronement, disease and death.

In spite of all I have written, however, there are multitudes who would look upon the closing words of the last sentence as merely overdrawn metaphor, whereas those words are but expressions of cold facts. None will deny that to do as we merely wish in moral and spiritual life means moral and spiritual death. To do as we ought means spiritual and moral—yes and mental—growth. But it is hard to do as we ought in the moral and spiritual planes, until we have by will and the crucifying of desire accustomed ourselves to that plane, then the reward becomes beatific and we are thrilled with the glory that belongs to the good. And none who has experienced it has ever denied that the reward was worth the effort.

It is just as hard for a time to do as we ought on the physical plane. But with the doing comes physical strength and a change of desire born of that strength and the physical thrill that accompanies it. None who has ever experienced the rewarding thrill of physical perfection that results from doing as we ought in our physical living habits has ever denied that the reward in nerve control, physical poise, mental clarity and consciousness of power, the general sense of satisfaction with all the terms of life are worth the effort.

There is no eulogy too great to expect from him who having lived himself into disease by living as he chose, and then, by living as he ought, has felt the thrill of consciously-improving health and finally perfect health. Such persons cannot ever, except temporarily, backslide.

The difficulty is with those who are less vital, less competent, less aspiring and achieving than their natural physical and mental equipment would make possible for them, if made the most of by living naturally or physiologically, yet who refuse to lift their self-imposed handicap resulting from wrong living habits, because they are not yet conscious of *dis*-ease. And they form probably ninety-nine per cent. of civilized mankind.

But I am sure to be asked by those who do realize their self-imposed handicap how and where they ought to begin to rid themselves of it.

Of course, the logical answer would be to begin at once, and gradually, to stimulate all of the five reflex chains normally by allowing their Primary Reflex Generating Centres to contact their natural stimuli. And that is the thing that must ultimately be done before the Defensive Mechanism can be counted upon to render the body immune from disease. But the average human is a peculiar animal and rarely endowed with common sense—for common sense is not at all common. At any rate he is rarely endowed with health sense. Until he is in actual pain, it is hard to convince him that the way he is living is or can be wrong. But even when he is convinced he will, generally, by force of custom, persist in his admittedly-wrong living habits; or either go the limit of reform in his living habits, making changes so radical, in comparison with his established habits, as to be a shock to his devitalized body; or he proceeds so gingerly and half-heartedly and intermittently as to feel neither shock nor benefit in his devitalized body.

Both methods are, of course, all wrong. He who would sensibly reform his living habits should learn that the body cannot adjust itself to radical changes in living habits in an instant, even when changes are vitally important to be made and the changes adopted are the correct ones.

TRANSFORMING HABITS SHOULD BE SLOW BUT PERSISTENT

The plant that is growing in the wrong soil, shut out from proper contact with the sun's rays, will do better if moved to a location where it will find in the soil all the elements to build its material body and also the contact with the sun, air and water, without which it cannot make full use of the building elements in the soil; but it will not be best for the future of that plant to yank it out by the roots, souse it into a new hole in the ground, although it be the best ground in the world, where it will be naturally watered, fanned by gentle breezes and beamed on for long hours daily by the blandest sun. To get the best results, such transplanting must be done with gentleness and due care.

So is it with the human plant that is not doing well in the uncongenial soil of wrong living habits. It cannot be transferred or transplanted too soon into a more congenial set of living habits, but it must not be yanked out by the roots and set up in a new set of living habits differing entirely from those to which it has become accustomed through many years, notwithstanding that those habits may be killing it. The very condition of lowered vitality from which it suffers is reason for not being too rash in the forcing of new habits upon it which are radical and extremely different from the customary. That person who plunges into radical changes in living habits will almost as certainly plunge back again into the old polluted pool of perverted living habits because he did not find his first two or three plunges into the new pool a fountain conferring immediate health.

Similarly is it with that minute experimenter who makes some minute change to-day and then forgets to make it again to-morrow and perhaps for several to-morrows, then half-heartedly makes the minute, or some other minute change, then again forgets and so on. That person will, of a certainty, conclude that "it's no use changing" for changes do him (or her) no good.

The correct method is to think your procedure well out, map out the plan of campaign, so to speak. Plan to transform the living habits gradually but with constancy and the utmost regularity. Do not begin too much, but once begun do not permit the new habit to lapse, that has been thought out and is, therefore, known to conform to nature because it operates in full harmony with the body's Defensive Mechanism. Also, every few days, increase the vigor or extent of that change until the limit is reached, where greater increase would be passing the physiological limit, the point at which exhaustion begins.

But what shall we tackle first? Well, the completely balanced person would begin at once to very lightly stimulate the whole five chains of reflex functions by slight but gradually increasing exposure of the skin to light and air, at first not moving air, but of varying temperatures, later on to moving air or wind; cool bathing, followed by hand pommeling, frictioning, etc.; gentle physical exercise, if vigorous exercise has not been the usual habit, both of the indoor systematized and out-of-doors play and walking kind; by sleeping in a well-ventilated room; eating some vitalizing, natural foods and gradually increasing the proportion of raw or natural food in the dietary until the great bulk of the diet is composed of vitalizing natural foods, and finally, by training the mind and emotions until the mind can close out every depressing or unpleasing thought and that will bring before its constant eye only thoughts sparkling with the colors of faith and hope and the continual suggestion of the best.

But there are very few completely balanced persons in civilization. We admit this indirectly by the way in which we marvel at the completely self-possessed, apparently impassive nature of the primitive races who are completely balanced in their nervous control. The unbalanced body either goes off half-cocked or hangs fire, and that is what we do in civilization—that is, the vast majority of us.

So we have to take into account the unbalanced individual. I speak from a long experience with trying to get the *genus homo* started upon the right track, and I know how hard it is.

The average human, whether you call him balanced or not, will not want to start the whole program at once, although one occasionally comes across that individual who wants to start in at the point where I am now after over a score of years of experience in building up new habits. But this kind never gets anywhere. The average person will want to start normalizing some one chain, and if he starts that one and sticks to it, gradually and in a sensible way increasing the natural stimulation of that one chain until he has perfected its functional efficiency as far as any one chain can be perfected by itself without the co-operation of the other four perfected chains, he will be, even then, away above the average in health and resistance as found among civilized people. He is then often in a receptive mood for taking on the other chains, but he is also often, too often, satisfied to remain where he is and cannot extend his imagination to an appreciation of what it must mean to him and his future progress and success in life to have the entire system of five chains of reflex functions operating in complete physiological harmony.

Which one chain, then, shall it be that we shall normalize first, if but one is elected to begin with? I answer unhesitatingly, the gastro-intestinal or food chain. Of course, this one chain of reflex functions, be it never so perfectly stimulated, can never be perfect in itself, because of its interrelations with all other chains through the ramifications of the reflex nervous system, which enables the abnormal reflexes at work in other chains to be reflected over to it and thus make it quite impossible for it to ever rise to absolute perfection of function. But of all single reflex chains the gastro-intestinal can accomplish the most towards delivering the ailing body from the clutches of devitalization, or actual disease, the final expression of devitalization. The body can at least be vitalized by the exchange of unnatural, devitalized foods for natural, vital or living foods. And while this vitalization cannot be complete in the absence of the other four chains adding their quotas to the vitalizing processes, the increased sense of well-being resulting may so impress the mind as to enable the patient to be easily persuaded to undertake the systematized training of the skin so that it will promote elimination and the protection of the body from environmental stress and aid in the invigoration of the body and balancing of the nervous system, giving to it control; and now it is generally easy to induce the rapidly normalizing patient to undertake systematized physical exercises, which will quicken the invigoration and balancing of the nervous system; all aiding in the normalizing of the slumber reflex; and through the normalizing effect of all of these lead to the easy taking on of the proper stimulation and control of the fifth and last, the mental or emotional reflex chain.

It is thus that I have led many a human derelict up to a taking on of a normal physical and mental vitality and health, and thence to a gripping, thrilling faith, who would otherwise long years since have fallen by the wayside.

In referring to the average human as unbalanced in his nervous control I do not do so contemptuously. While it is all too true, as proven by the general absence of sufficient resolution in the average human being to enable him to choose to carry out the temporary inconvenience of trying to normalize the body by nature's means, it does not prove that the average civilized human lacks inherent or potential nervous balance, the basis of mental resolution and continuity, but that this quality has been lost through the devitalizing effects of the unnatural living habits of civilized peoples. How can one expect that body which has been built up by feeding upon devitalized and unnatural foods to thrill at the thought of vigorous physical exercise; and how expect that body to be vigorous that does not eat vitalizing and invigorating foods and does not vigorously exercise? And how expect the non-vigorous body, or the mind within such a body, to look upon the unconventional undertaking as other than a difficult one; and why expect such a body to readily choose a seemingly difficult undertaking?

To such devitalized people a change in the foods seems the least like a difficult undertaking requiring resolution to carry through, although it is surprising how many change their weakened minds within a week or so, and even less. This is another reason for starting in on the food chain. We may have to make a good many false starts before we really get away upon the road of better foods and better feeding habits. Therefore, on the food chain let us begin.

CHAPTER THIRTY-FIVE

THE PRINCIPLES OF PROPER FEEDING.

Manifestly it will be impossible in a book the dimensions of this one to give detailed instructions in dieting for every conceivable kind of disease. Nor is it necessary. Since the cause of all diseases, so far as dieting is their cause, is the use of incompatible "excess acid" and devitalized foods, and too much food, with too hasty eating, the dieting of all diseases must be more or less identical.

It is difficult for many people to grasp the idea that the same kind of dieting may "cure" excessive leanness and fatness. But when it is well understood that when the blood and solid tissues of the body are surcharged with poisonous substances and acid residues there may be either a rapid breaking-down of the cellular structures of the body, through over-stimulation of the nervous tissues, leading to thinness; or a failure to oxidize or burn up the cellular and food detritus in the body and the storage of much of this material as fatty tissues, it can be easily seen that the "cure" of both conditions lies in forcing a diet that will purify and alkalinize the blood. And always this is accomplished by an increase in, sometimes for a period an exclusive diet of, the green leafy vegetables, milk and fruits; with the addition of some whole-grain foods, as Roman Meal* or cracked wheat or natural brown rice, to add a "stiffening" to the diet of vegetables and fruits, since what is most complained of in an exclusive diet of leafy vegetables and fruits is a sense of relaxation and weakness. Because Roman Meal contains twenty-five per cent. of alkaline flax-o-lin which product has all the saline elements native to pure flaxseed, and this seed is several times richer than wheat, rye or oats in alkalis, I much prefer Roman Meal to all other cereal foods, but the other whole-grain cereals also can be effectively used, although the quantity should always be considerably less, because of their acid-producing tendencies.

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*All references to Roman Meal throughout this chapter refer to Dr. Jackson Meal as sold in the United States, a different product from Roman Meal made in the United States (see footnote page 327).

The last paragraph will explain, or at least hint, how it is that at bottom all diseases may bear a dietetic relation to each other and thus their dieting be fundamentally the same.

Thus it occurs that the only method open to me is to discuss the appropriate procedure in certain types of individuals and abnormal states.

Shall we treat all alike? In the end, yes. One would expect that to be so from what has been said above. But in the beginning what? Shall we similarly treat the pale, anaemic girl (or man, for there is such), who for many months, perhaps years, has breakfasted upon toast and coffee; lunched upon cream puffs, pie and coffee, with after-dinner mints or chocolates; and dined upon pancakes, or hot tea-biscuits, fresh white bread, syrup and pie or jam and tea or coffee; and the robust man (or woman, for there is such), whose blood pressure is high, color ruddy, appetite enormous for "lots of good nourishing food," generally consisting of "three good square meals a day," mostly meat, eggs, white bread, potatoes, pickles, puddings, pies, ices, tea or coffee: and the man (or woman, for there is such), with discolored skin and white of eyes, often "icteroid" or greenish yellow; breath so fetid it can be smelled two to four feet away; tongue indented by the teeth, fissured and furred, yellow or white; constipation marked; also eating "lots of good nourishing food"; and the fat but colorless woman (or man, for there is such), who complains of nervousness, or its opposite, inertia, lack of self-confidence, worries and kindred symptoms; and the robust man who knows of nothing at all wrong with him and is sensibly anxious to learn how he may continue always normal?

Shall we put all of these differing conditions upon whole-grain bread, whole-grain muffins, whole-grain porridge, raw vegetables and fruits, milk, eggs, nuts and cheese, and expect them all to favorably react and soon be well, and remain well? Ah! if it were only so easy! But it is not. The only one of these types that could be immediately placed upon whole grains, milk, eggs, vegetables, nuts, fruits and other entirely natural, therefore vitalizing, foods without untoward results would be the last-named. Habit has not yet destroyed his physiological balance and he can, with advantage, be placed at once upon natural, or largely natural, vital foods. But bad and unnatural living habits that have begun to consciously punish their victims are not only hard task masters, they are hard to shake off.

For all but the first and last-named types, undoubtedly the best way to begin is with a complete fast of from two or three days to two or three weeks. But since a fast of greater length than a few days should generally not be undertaken without the supervision of a physician, and since few physicians know much or anything about fasting, or about conducting a fast, we shall consider definitely here only the three-days-fast.

Before doing so, however, let me say that any of these types, except the last, may have all manner of symptoms, and signs: from headaches, indigestion, constipation, abdominal distention and joint pains to joint nodules, interrupted heart beat, dizziness and slimy stools. But we are not going to be concerned about symptoms. It is the condition or cause behind the symptoms we are going to treat, and, if we are successful in this, the symptoms and signs must disappear.

How, then, shall we conduct the three-days-fast? This is a simple procedure, so simple that one's ordinary work or business need not be halted. In the morning upon rising drink two glasses of water, hot, warm or cold, whichever is the most appealing. Then up until 6 p.m. drink two glasses of water every two hours, but these need not both be drunk at once, they may even be sipped and taken very slowly through a half hour or more. In fact, so long as the two glasses are taken in the two-hour period it is satisfactory. When the three days are over, break the fast by sipping fruit juices diluted with water for the first day; the juice of one orange in a glass of water being sipped every two hours is quite satisfactory and also blood cleansing. The sugar in the orange juice supplies considerable energy and body heat and the alkaline mineral matters neutralize body acids and eliminate them, thus operating to cleanse the tissues;

and because the juice is natural and vital it also vitalizes the body cells. The next day orange pulp itself may be eaten, one fair-sized orange every three hours being eaten. The patient may then with great advantage live upon fruits, raw, acid and subacid varieties, as oranges, apples, peaches, pears, for several days, eating all the fruit desired, but only at the three regular meal times. The fat and those with the discolored skins and white of eyes really ought to live so for at least a week. Then for another day one or two cupfuls of half-and-half may be taken with the fruit. Note *taken with* the fruit means it must be well chewed into the fruit. The fruit must not be eaten by itself and the milk gulped down as a drink. This is frequently the reason why milk and fruit are supposed to be incompatible. But if both are well chewed together the mixture is quite easily digested, the fruit breaking up the hard clot, which the milk tends to form when gulped, into a soft curd. Afterwards the diet may at once be adapted to the various types as I have tried to outline it in the following:

For the first type, following the fruit diet, if there were no complaint of stomach distress, I would begin by feeding Roman Meal porridge with milk, and a little cream added, sufficient only to make a good rich milk, and no sugar added, but add dates or raisins or figs, if sweet is demanded. For second choice of sweet I would add honey, but sugar ought to be avoided because of its tendency to ferment and because its contact tends to irritate the cells of the stomach lining. This is especially true of white sugar. But the tender stomach will get along far better without sweetening at all, at least for a time; and Roman Meal has a delightful flavor of its own. I would feed one cupful of Roman Meal three times a day, and no other food, except it be the raisins, etc., used as sweet, and the milk that goes with the porridge, three times a day until the bowels move freely of their own accord. Then cut down on Roman Meal by cutting it out at lunch and in its place take a lunch, or mid-day meal, of any of the sweet dried fruits* with milk; or even apples, oranges, peaches or pears with milk, the milk and fruits to be well chewed together before swallowing, and no restriction as to quantity. There is no need to restrict the intake of such simple natural foods. Almost no one will, almost no one can, overeat on such foods. I would only restrict the milk intake at such lunch to two cupfuls. The other two meals I would still make either Roman Meal porridge, always well chewed with the milk; or Roman Meal muffins, bread, johnny-cake, quick biscuits or steamed pudding, any of them served with butter and honey and a glass of good milk, the milk to be well chewed into the food. If there were no fermentation or acid stomach the pudding might be served instead with the recipe sauce. After two or three days of these meals I would change the night meal to one of lightly-steamed vegetables (one of which vegetables may be potato), one—for the adolescent two—very fresh steamed, coddled or soft boiled eggs, and one strip of quite fat bacon if fancied, otherwise leave the bacon out. The vegetables should be served only with butter and a little salt—a little meaning a LITTLE, a very small amount—for salt in quantity is injurious. Use no other seasoning. Properly-steamed vegetables should never be cooked until they lose natural color; in which case they are very deliciously flavored and this delicate flavor is lost by seasoning; and, moreover, almost all artificial seasonings cause catarrh of the stomach lining. This meal may have fruit as a dessert, either the acid or subacid fruits or the dried sweet fruits, but not both. After two to five days of these meals I would begin to vary the evening meal by adding nuts, new cheese or baked beans; if under forty, occasionally red rare meat, when meat is hankered for. But with these additions, especially with meat, I would also add some raw leafy vegetables, at first a small helping but gradually increasing the amount until taking at this meal a large bowl of some leafy salad stuff, served only with a little salt and lemon juice, although the thin folk may add olive oil or oil dressing. In season, tomatoes, radishes, peppers, etc., may be added, the tomatoes in considerable proportions as a valuable addition to the diet.

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*The sweet dried fruits are: raisins, dates, figs, prunes.

To the Roman Meal and milk meal I would now add a similar salad, at first small in amount but gradually increasing to a large serving. To avoid tiring of the Roman

Meal, I would have it served in a variety of ways, as porridge, bread, pudding and simple cakes—muffins, gems, etc. Sweet fruits and subacid fruits (mild apples, peaches, pears, melons, sweet grapes), may make a dessert for this meal, but avoid acid fruits*, especially if the stomach is sour or easily made so, for Roman Meal is a starch food and mixing acids and starches should be avoided as a matter of rule. A cup of milk is also compatible with this meal. The fruit-and-milk meal I would always continue for one meal in each day, but it may be taken as breakfast or luncheon, as best suits the convenience of the individual. If the fruit-and-milk meal makes the luncheon, then the Roman Meal and salad should form the breakfast.

All of the foods mentioned, except the baked beans and meat, are vital, natural foods, capable of vitalizing the body tissues and giving them resistance to the daily wear and tear.

From time to time these meals may be varied at the option of the eater, even to an occasional indulgence in a conventional meal, provided care is exercised not to overload the stomach. If meat forms a large part of such meal, then the next several meals should be largely made of fruits and salads to counteract the acid-forming tendencies of meat. But the old feeding habits must never be permitted to reassert themselves, for what brought on abnormal health previously will all the more quickly reproduce that bodily condition.

A rule should be that all foods shall be chewed until they have lost their original flavor.

If these cases have suffered stomach distress, that is, if they were consciously dyspeptics, I would start them for about three days upon a fruit or fruit-and-milk diet, well chewed together, three meals a day. Then I would substitute one of the meals with Roman Meal and milk. After three or four days I would substitute a second meal with Roman Meal and milk. Then, when the bowels seemed moving freely, that is, after each meal, I would change the three meals to the three just given above for the person of this type who has no stomach symptoms.

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*The acid fruits are: all sour fruits, oranges, lemons, grapefruit, limes, tomatoes; sharp, sour apples, etc.

Why do I use Roman Meal in these cases so extensively at the start? Because such cases have shrunken bowels from having subsisted upon a diet almost devoid of cellulose or fibrous waste. Such bowels need lots of waste, and Roman Meal is rich in cellulose in the form of finely-cut bran, which will not irritate and cause further contraction of the sensitive bowel tube. Besides, twenty-five per cent of Roman Meal is flax-o-lin containing the healing and soothing properties of pure flaxseed, without its disagreeable odor and taste. Roman Meal, therefore, lubricates and soothes the irritated walls of the bowel and allows it to dilate in response to the requirements of the bulky, cellulose waste; while bran without the soothing flax-o-lin will often irritate the bowel and make it worse. After a few days' use of this bulky but soothing food, the walls of the contracted bowels will have relaxed and increased their lumen or calibre and they are ready for functioning upon other natural foods, fruits, vegetables, nuts, etc. Such cases must flush the bowel with two enemas daily while the fast continues.

Of course, it will be understood that this method of changing the diet is applicable to anyone who has lived largely upon waste-free foods, as white bread and all white-flour baking, rice, cream of wheat, farina, rolled oats, corn flakes, peeled potatoes, eggs, flesh foods, tea, coffee, fruit jellies, and all whose diet has not been made up largely of bulky fruits and vegetables with whole-grain cereals and bread, etc.

The robust man or woman with florid complexion and high blood pressure, we shall treat quite differently at the start, although not so differently in the end.

It is imperative that this type fasts. While I promised to definitely consider only the three-days-fast, this is a class that can safely fast until the blood pressure falls to 100 plus age. That is, if the patient is fifty or sixty or sixty-five, then fasting can safely be carried out until the pressure falls to 150 or 160 or 165 upon the testing instrument.

At the same time that the fasting is going on, the bowels should be washed out twice daily with two quarts of warm water (about 110°F.), to which four level teaspoonfuls of table salt have been added. Also during the fast one or two glasses of water are to be drunk every hour, up until 6 p.m.

The technique of taking an enema is as follows: Lie on back (on a mat on bathroom floor is as good a place as any), with the fountain syringe suspended from a nail so that the outlet of the bag is about eighteen inches above the outlet of the bowel. Lubricate the syringe nozzle and insert into bowel opening using a slight rotary movement, pressing lightly and pointing slightly upward as if to pass the nozzle out at the navel, at the same time bearing down as if trying to move the bowel, to relax the sphincter muscle closing the outlet. As the water flows slowly into the bowel, press the palm or the heel of the hand deeply into the relaxed abdomen just above the pubic bone at the lower front of the abdomen and, while pressing, pass up in the direction of the navel, but just below the navel pass hand far over to the left of abdomen and then up the left side until the ribs are encountered, then pass over to right side of abdomen just over or above the navel, continually maintaining an even pressure with the hand. Continue this movement five to ten times a minute, to force the water into the full length of the large bowel. If, during this process, there should be an intense desire to expel the water, shut off the flow and keep pressing the water up as just instructed and soon the expulsive effort will subside, when the stream can be turned on again. Or the patient may prefer the knee chest position, which is perfectly satisfactory. Repeat enema morning and evening during the entire fast.

If fast continues beyond the first week, to each glass of water drunk may be added the juice of one orange, or if the patient is fat the juice of half of a baked lemon (baked just long enough to soften but not to explode). But no sugar is to be added to lemon juice and water.

The breaking of the fast is the crucial time in the fasting treatment. The digestive function has lain dormant for some time and, being controlled by the reflex nervous system, it cannot be brought back to normal activity, as can organs under control of the will. Such organs can only be brought back to functional activity by very slow stages. Food, therefore, should at first be almost none, to tax the digestive capacity as little as may be, and very slowly increased through several days. I am referring, of course, to the prolonged fast.

I have known physicians place patients upon milk toast after a more or less lengthy fast, and when the inevitable trouble followed, blame the fast and not their own misunderstanding of the physiology of fasting.

With high blood pressure it is especially important that all gastric or stomach symptoms be guarded against, hence the fast must be broken with extreme care.

If patient has not been upon orange juice, but only on water, then he should go upon orange juice and water, as described above, for two or three days. If he has been on orange juice, discontinue. First day following the fruit juice take two level teaspoonfuls of malted milk in a glass of hot water every two hours until 6 p.m. Second day increase to three teaspoonfuls. Third and fourth days to four teaspoonfuls. Fifth day same as fourth, except at mid-day take a sauce dish full of apple sauce,without sugar. Sixth day a rounded tablespoonful of malted milk in a glass of hot water every two hours, with apple sauce at noon in place of milk. Seventh day the same except that the malted milk may be added to one-third glass of dairy milk, then the glass filled with hot water. Eighth day same, except at noon the meal may be a half-cupful Roman Meal porridge and milk with two teaspoonfuls of strained honey, if sweet is demanded. Ninth day a half-cupful of Roman Meal porridge with milk, at noon and also evening meals, otherwise the same as eighth day. Tenth day half a cupful Roman Meal porridge for morning, noon and night meals, with malted milk, made as for seventh day, in the mid-forenoon and mid-afternoon. Eleventh day same as tenth, except add a small salad to the noon meal. Twelfth day same as eleventh, except add a salad to the evening meal also.

From now on the patient may be placed permanently on one fruit or fruit-and-milk meal; one Roman Meal and salad meal with sweet or subacid fruits for dessert; and one salad and lightly-steamed vegetable meal, with nuts as the only solid protein each day. Such patients must avoid animal proteins, as eggs, meat, fish, cheese; and also the legumes, as dried beans, peas and lentils, but may take six to eight nuts or one pint of milk or buttermilk each day.

A few dates, figs or raisins may be taken at the Roman

Meal and salad meal; and the same or acid fruits at the salad, steamed vegetables and protein meal; but avoid the combination of sweet and acid fruits at same meal.

A restricted diet? Yes, but it is the one real hope for the victim of high blood pressure returning to normal and living out his full life span. Even then, these patients must strictly avoid anything like overeating, which is easier to do when the foods are simple and the variety restricted.

But let such patients be comforted by the knowledge that the palate soon learns to relish these simple, natural foods and enjoy them, and there is always the sauce of "natural hunger" which aids in their enjoyment.

With these patients, slow eating and perfect mastication of every mouthful is very, very important to avoid fermentation and gas accumulation in the bowels, for pressure of gas here compresses the large bloodvessels in the bowel walls, large enough to hold almost all of the blood in the body. If these are unnaturally compressed it means the increase of pressure all over the body and may easily be the direct cause of a ruptured bloodvessel in the brain. Gas that forms but passes off readily causes no trouble. It is accumulated gas with pressure that causes danger.

For the same reason, the bowels should be habitually emptied after each meal. A loaded bowel promotes pressure from its contained excreta, but in a greater way by the fermentation and gas production which it induces. And if sufficient Roman Meal, fruit and vegetables are eaten it is the easiest thing conceivable to develop the habit of bowel-evacuation after each meal. Go to the toilet and try whether there is desire or not, and in the end the habit will be established and the desire will come after each meal.

For the man or woman with more or less discolored skin and white of eyes, bad breath, etc., the entire treatment should be the same as that just outlined, except that when there is not high blood pressure the permanent diet may allow of occasional fresh eggs or cheese; and for those under forty occasionally red meat, but never oftener than a small helping twice a week, in place of nuts. But not in addition to nuts—always *only one* protein at any single meal. Those who are consciously ill in any way cannot be too careful about this mixing of proteins, and the same care should also apply to starches. But those who are consciously suffering from retained poisons in the body, as are the class we are now considering and the one preceding it, positively must, if they would become well and remain well, see that only one protein or one starch food goes to make up any one meal, and these two food types (starches and proteins) should never form parts of the same meal, for this mixture assuredly adds to the poisons that the body is already struggling to rid itself of, and what we aim at is to reduce these poisons. But if there were no better reason for these precautions the danger of overeating by the use of a variety of foods and flavors would be a sufficient reason for observing these restrictions.

When red meat is eaten, or any kind of flesh, it is imperative that a large leafy salad, or uncooked fruit a-plenty, be eaten at the same meal to neutralize the tendency of flesh to quickly putrefy (rot) in the bowel and its poisonous products to be absorbed into the blood as toxic substance. Fruits and raw vegetables, but especially fruits, tend to check the growth in the bowel of the bacteria which cause rapid rotting in flesh foods, and they also neutralize the tendency of flesh foods to acidify the blood, hence their importance in a meal which is partly formed of flesh.

In both the chronically-poisoned and the high-blood-pressure cases the meals outlined may be rotated in any way to suit convenience, that is as to which meal is first, second or third in the day; but the three meals a day as outlined are important in order that all the building and vitalizing elements shall be supplied in the day's foods.

It is even more important for the chronically-poisoned to evacuate the bowels after each meal, or oftener if the impulse is present, to prevent a reaccumulation of the poisonous matter in the large bowel which was cleared out by the prolonged fast. But the patient must not worry if these bowel movements do not begin for two or even three days.

The duration of the fast in these cases should be long enough to very thoroughly cleanse the large bowel, which can be determined by the return of the enema clear and odorless. Under the care of a competent physician who has had considerable experience in fasting it should be continued until the tongue is clean and the breath sweet, but otherwise it is safer to end it when the bowel is well cleaned then break the fast as described for the high-blood-pressure cases; letting the diet differ only in the ways suggested herein.

The colorless man or woman, with *nervousness,* depressive fears, insomnia, etc., should begin dieting by a three days' water fast, two glasses of water every hour, with enemas as described above, followed by three days on fruit juice and water (juice of one orange to a glass of water every two hours), this followed by two to three days on fruit and milk, or fruit and half-and-half, in three regular meals; as much fruit as cared for, with one pint of milk divided as desired into three meals for the first day (of milk and fruit) and one quart of milk for the next day or the next two days; if the two days are elected a quart each day. Then change over to one fruit and milk meal; one Roman Meal, milk and salad meal, with sweet fruits or subacid fruits as dessert; and one salad and steamed vegetables with protein meal, in which potatoes may form part of the steamed vegetables. Eggs, always soft boiled, steamed, coddled or poached, and never more than two to a meal; or nuts; cheese, preferably new and fresh; cottage cheese; flesh or fish, (never oftener than twice a week), or baked beans, may form the proteins, always keeping in mind that only one of these should form the protein part of any one meal, at any rate until the health has been fully recovered, when it is likely that this commonsense habit shall have been established for good. To my patients over forty-five, who express the sincere wish to be free from disease, I always give the advice to refrain from flesh foods entirely, save on social occasions when refusal is likely to embarrass the well-meaning hostess, then to dip lightly into it and always eat all the fruit in sight, which in meat-eating houses is often not very much, and to also eat plentifully next day of fruits and vegetables.

With the Roman Meal and salad meal, sweet or subacid fruits may form the dessert, or whole wheat or Roman Meal muffins, gems, or steamed pudding may be eaten with butter and honey. The pudding may also be eaten with its own sauce in place of butter and honey, after the health has been considerably improved, but always the butter and honey will be more wholesome.

For the robust individual who is well and wishes to remain well, the start may be made at once upon one fruit-and-milk or half-and-half meal; one of salad and Roman Meal in the form of porridge, or gems, muffins, bread, johnny-cake, quick biscuits, fruit-loaf, nut-loaf, etc., or whole-wheat bread; any of these with butter and honey and sweet or subacid fruits as desserts; and a third meal of salad, lightly-steamed vegetables and, one only, protein, as described above; with any kind of fruits for dessert. One pint of milk or buttermilk ought to be taken each day, but never any milk should form part of a meal into which flesh of any kind enters. So also should sugar be avoided with flesh foods.

So much for dieting as a measure for regaining and retaining health. Almost every case will fall more or less under one of these general classes and everyone must decide for him or herself to which class he or she belongs. The real objective is, of course, to live in harmony with nature's evident intent that we use natural foods, simple meals, simply prepared in simple combinations. Such foods are mostly vital foods capable of transmitting their vitality to those who eat and live upon them and thus build into their bodies resistance to all body-disintegrating influences or to disease.

There will be those who will think the variety not very extensive and the living not very luxurious, but to such I can only say, choose between great variety and luxury with their disease-producing tendencies on the one hand, and simplicity and naturalness with the more rational variety that creates no tendency to overeat on the other hand. It is the lesson we learn from the open book of nature and to follow any other method or living habits than those taught in nature's book is to oppose our wills to nature, only to have them ruthlessly pushed aside, in the last end, by the inexorableness of nature. Nature is the perfect healthgiver, never the art or artifices of man, therefore choose whether you will serve art or nature. Keep this thought before your mind's eye when deciding—those races are disease-free who are compelled to live simple lives and who follow nature's ways because they know no other way.

One closing caution: do not confound vitality with physical strength. The great ox of a man may have little or no vitality, often has little, as is shown when pneumonia or some other disease attacks him. Vitality and brute strength may go together, but what we are seeking is *vitality* which gives the stiffening to our frame and enables our Life Principle to resist the onset of all disease, regardless of physical strength.

NOTE.—The reader is urged to re-read chapter nine in connection with the foregoing chapter.

Readers in the United States who may wish to investigate Roman Meal will find it in U. S. stores only under the name of DR. JACKSON MEAL. The trade name "Roman Meal" has already been trademarked by a U. S. firm for another product made after a different formula, hence the change of name in the States to "Dr. Jackson Meal." It is still sold in Canada and Great Britain as Dr. Jackson's Roman Meal. U.S. readers must not imagine they are eating anything resembling Dr. Jackson's Roman Meal, save, more or less, in appearance, when eating Roman Meal made in the States. They should ask for Dr. Jackson Meal, not Roman Meal, if they would secure the only alkali-forming grain food.

CHAPTER THIRTY-SIX

THE IMPORTANCE OF A COMBINATION OF NATURAL WHOLE GRAINS.

Throughout this book I have stressed the need of naturalness in foods; the necessity of using foods *changed in no essential way* from the way in which nature provides them for us. The reason for this has been shown to be that only natural foods can contain life, and only life-containing foods can vitalize a human body and give it resistance to or immunity from disease..

To make this point clear, it has been necessary to show that the body substance and its Life Principle or Living Essence are separate and distinct, therefore, that "dead" or non-vital foods can readily build the body's substance but they cannot vitalize it and give it *life-resistance* to disease.

It ought to be self evident that foods that have no Life or Vital Principle in themselves cannot pass Life or Vital Principle and resistance on to the bodies built out of them.

This is a new thought to most of my readers; but it must be grasped by them, if they are to develop, through natural living habits, a natural immunity from disease; because a lowered vitality, from devitalized foods, must mean disease, sooner or later. That is why I repeat the thought here in the constructive part, as well as in the critical section of this book.

The diet of those who would be always well must be a *vitalized* and a *vitalizing* diet. And a vitalized and vitalizing diet is not possible to be made from muscle meats, white-flour products, refined and factory-cooked cereals, preserved foods, refined sugar and other "dead" foods. It is possible to be generally well, living upon such foods, in the sense that one is not consciously sick. And if we have a splendid inheritance of vitality we may even live a so-called long life of seventy or eighty years, but there can never be the mental and physical resiliency and efficiency that must result from a daily renewal of the vital life element in the body through the use of foods that also possess a vital Living Principle that they can pass on to bodies eating them.

Such vitalizing foods are whole grains that have been subjected to but a very short cooking very shortly before they are eaten; milk, preferably raw and unsterilized or unpasteurized; very lightly cooked eggs; nuts; vegetables, raw or only slightly cooked; fruits, preferably always uncooked, for the vital principle inherent in delicately constructed fruits is very easily destroyed by heat, and fruits are so delicious eaten in God's own way of preparing them; and also so wonderfully vitalizing.

There is a proper way to "grind" cereals or grains, and that is not to crush or roll them but cut them into little granules. Crushed or rolled grains become pasty when cooked and are thus less digestible, for the digestive juices cannot permeate such non-porous, pasty masses.

When we stop to think of the quantities of these pasty cereals—non-digestible, non-vitalizing and non-alkalinizing—that are used by civilized races, we begin to get some inkling as to the reason for many of the illnesses of civilized peoples.

Granulated whole grains, cooked at full heat for three to five minutes, do not lose their vitalizing principle, if eaten within a short time, say a half-hour, after such short cooking. But even granulated whole grains lose their power to vitalize the body if subjected to prolonged cooking at high temperature, although they will still build the body substance well.

Civilization appears to have gone entirely wrong in this matter of cooking cereals, and science has been largely responsible. Scientists have studied the intestinal dejecta and found that by long cooking of starch more of it is digested in the civilized digestive tract than when it is cooked for only a short time; thus they decided long cooking yields more energy per unit of starch consumed.

But energy is not the sole purpose of taking food, and foods easy of digestion are not always an advantage either to the digestive power, which tends to weaken like all functions when the call for effort is below what nature has intended (see law number seven in Basic Principles), or to the body as a whole. Starchy cereals do liberate more energy and do digest easily, when they are "well cooked," but they weaken digestive power and tend to increase putrefaction in the colon, from which the blood takes up poisonous substances, to the injury of the entire body.

The primitive man, who does not know what an unhealthy colon is, cracks his grain foods between stones and cooks them in the crudest way. Of course, they do not fully digest, and this is a loss of energy. But there is more than a corresponding gain, for portions of such grain foods reach the colon undigested, to a certain extent, where they break down into lactic acid, (the same as the acid in sour milk), and lactic acid is the very best antagonist known against the germs that cause putrefaction in the colon.

Here is the reason why Roman Meal* is cut into little granules, and also the reason why I recommend cooking it on a quick fire in a single boiler for three to five minutes, stirring constantly, then removing from fire but leaving covered for twenty to thirty minutes and serve. I always cook my own in that way and find it granular, not pasty, and its granules nutlike in character and very appealing to the taste. I always make it a little thicker than recipe on package calls for, using one rounded cupful Roman Meal to each two cups boiling water, for I like it thick enough to be easily chewable. Cooked thus, Roman Meal is subjected to but a few minutes of high temperature, yet it is still gradually cooking when removed from the fire, but at a temperature that is not so destructive to the vital or life principle. When eaten thus it is non-pasty and granular and I can digest enough of its starch to supply me with all the energy I can use or need, however active I may be, and the undigested granules form lactic acid in the colon, preventing the overactivity of the vicious putrefactive micro-organisms of the colon, thus diminishing the resultant poisons for me to absorb into my blood. I thus achieve the same result as the primitive man obtains from his primitive method of cracking and cooking whole grains; and I am equally free from all disease.

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*All references to Roman Meal throughout this chapter refer to Dr. Jackson Meal as sold in the United States (see footnote p. 327).

Of course, much as granulated Roman Meal, cooked in this simple way, has to do with keeping me not only always well, but immune from disease, it is not the only important food precaution I use. Besides using purely natural foods, among which I always include a proper proportion of Roman Meal, both as porridge and baked goods, I also take every precaution to make large use of other "excess alkali" foods.

Please turn to chapter nine and re-read it in order that the remarks which follow may be more understandable. After that re-reading it will be clear that I have a splendid reason for eating "excess alkali" foods.

If the human body tissues break down into acids as they wear out—and nothing is more certain than that they do—and the foods we eat also result in adding acids to our blood, we are endangering our lives in two ways. First, we are sure to suffer from a relative acidosis which may result in sudden death by proceeding to the point of a positive acidosis. The only way, in fact, by which we can be saved from a positive acidosis is what causes our second danger. If our eliminative organs can cope with the double production of acids mentioned, we shall avoid positive acidosis and sudden death, but not otherwise. And if we do cope with them, what then? It must be at the cost of extra effort upon the part of the excretory organs, with ultimate irritation and possible inflammation and destruction of those organs, chief among which are the delicately-constructed kidneys; for a great amount of such adventitious acids is excreted as excessively acid urine, which, in the proper subjects, will first cause hyperemia or congestion, then irritation, then inflammation, then destruction of those organs. It is not for this reason always that meat is stopped in Bright's Disease, but it is an added reason why it ought to be stopped.

But it is just as important to stop feeding white bread, refined cereals, polished rice, fats and sweets, for all are acid producers; and instead concentrate upon vegetable broths, lightly-steamed vegetables and well-diluted milk, for all are alkalinizers.

In fact, in all our dietaries, here is a principle that ought to be continually kept in mind. The really interested reader ought to continually refer to chapter nine in making up dietaries until the acid- and alkali-forming foods are well remembered, and always see that at least three-fourths of each day's foods are drawn from those which have an alkaline excess; since only such foods can leave an alkaline residue in the blood. This is true regardless of what the reason may be for undertaking dieting; whether to simply reach a higher level of resistance to bodily wear and tear and a greater certainty of immunity from disease, or to more certainly recover from some already-established disease. And the guide to a normalizing dietary ought to be memorized as a simple formula, as follows: Three-fourths of the day's foods, in bulk, from whole-grain cereals and breads, nuts, milk, vegetables and fruits; with emphasis upon the fruits and leafy or salad vegetables.

Such a dietary will ensure a normal alkalinity of the blood, with freedom from organic irritation or strain.

I regret the necessity that here seems to be upon me of explaining the special virtues of Roman Meal, since I may appear to be pushing my own food device, for I it was who devised Roman Meal. Unfortunately most of the popular cereal foods have not been devised by those who have any knowledge of the human body or its special needs in a physiological or biological way, but by men who have a strong commercial instinct and a special knowledge of the art of making foods tempting to the eye, the palate, and to that desire of the modern housewife to eliminate work as much as possible. The high commercial instinct behind these foods has not scrupled to present them to the public as superior foods, and their specious advertising claims have been accepted at their face value, resulting in much of the sickness we see about us.

I devised Roman Meal at a time when I was allowed only four months to live, by a physician owning the greatest name and reputation in modern medicine, and his prognosis was concurred in by several other internationally-famous medical men; all but one being authors of textbooks from which medical students were taught the practice of medicine.

And who would not say they were right, for I had a blood pressure of 212 to 215 and a "chaotic heart," and was compelled to live upon the ground floor and be very inactive to keep my heart going at all. Far worse than that, however—and this was the most unfavorable point in the prognosis—was my family history. My father was one of a family of twelve children, and all of them, but one lost at sea, died of "heart disease," my father, the oldest of any at time of death, dying at forty-three. And I have one sister and one brother dead from "heart disease." So the doctors were surely justified in their gloomy prognostications, in which I concurred. Judged by all the canons of medical art, I was surely doomed to an early death.

But I have told in chapter twenty-two how I was startled out of my concurrence in that gloomy prognosis by the flippant question of a young "society woman," and startled into doing my own thinking. So well was that thinking done that I who had been compelled to live upon the ground floor to keep my heart from stopping from the effort called forth in climbing stairs, was, within four years after death sentence was pronounced, able to climb the fifty flights of stairs in Washington's monument, on a hot and humid fourth of July day in hot and humid Washington, the only one of twelve starters to go above the eighteenth floor; although I was five years the oldest of any in the group and two starters were under thirty. Yet I climbed the whole fifty flights and then also walked down. Surely this was a striking proof of the vitality and endurance of my body, similarly proved about fifteen years later by the bicycle contest outlined in chapter twenty-one, undertaken to prove that my simple diet, in which was no flesh food, could endow the body with vitality and great and unusual persistence and resistance—facts surely amply proved.

But what has all this to do with Roman Meal? Simply that Roman Meal is the pivot upon which the reformed diet that enabled me to recover revolved. That is the reason why I feel I ought to discuss Roman Meal here.

McCollum's experiments have shown that no one whole grain is well balanced in its amino acids. There are eighteen amino acids that take part in the construction of proteins, and a complete food protein must have the entire eighteen contained in certain relative proportions to each other or they must fail to properly develop the protein-bearing tissues, the actively-functioning tissues, of the body. The body may feed upon all the incomplete proteins it can ingest and yet die from starvation—or sicken and die from protein deficiency.

McCollum found that when certain grains are mixed or combined into one food ration in proper proportions the amino acids are all present in far more perfect proportions for the purpose of forming true or complete protein-bearing tissues in the animal body.

Roman Meal is such a compound, consisting of thirty per cent. whole wheat, thirty-five per cent. whole rye, twenty-five per cent. flax-o-lin, five per cent. finely-cut wheat bran, and five per cent. rice polishings.

I had been living upon white bread and other white-flour products and lots of the refined and factory-cooked cereals, made out of only a part of one grain. But when I "came to" after my encounter with the young mother I awoke to the fact that my unbalanced foods were slowly killing me and would soon have had me dead. Coming upon McCollum's report I turned my attention to improving my diet and the first real result of that effort was Roman Meal; which invention undoubtedly saved my life. I ate almost nothing else for nearly two years, for I did not at that time know how to combine natural Roman Meal with other natural foods, as nuts, vegetables and fruits. But the alkalinizing and vitalizing properties, and the balancing of the amino acids, soon made such an impression upon the cells of my body that I began to *dream* of getting well. Thus I set up an affirmative and positive or constructive mental or emotional stimulus that passed out to all those functions more immediately under control of the emotional reflex chain, and this was communicated to all the other chains as a constructive force, through the reflex nervous system. Then I began to *believe* I would get well and this constructive impulse was repeated. Then I *knew* I would get well; and then I *was* well; due, in the first place, to the constructive forces inherent in natural food acting as a natural stimulus to the chain of nutritional functions tied up in the food reflex chain, and, through the reflex interrelations of this chain with all of the other reflex functions of the entire body, a benign circle was established so that all functions became functionally constructive, where before they had been destructive. But I cannot get away from the fact that my start was due to eating Roman Meal, milk and sweet fruits. I, who had been a sugar fiend, stopped eating sugar and ate for sweetening with my Roman Meal and milk only raisins or dates or figs.

Now why did Roman Meal have such an—apparently almost miraculous—effect upon my dying body? The shortest answer I can give is that I was dying from acidosis and the eating of "dead" foods.

Let me now present the alkaline mineral contents of white flour and the two most commonly used grain foods, and also of flax-o-lin, which makes up one-fourth of Roman Meal, and the reader will understand that answer:—

ALKALINE MINERALS:	CALCIUM	MAGNESIUM	POTASSIUM	SODIUM
Whole Wheat	.045	.133	.473	.039
Whole Corn	.020	.121	.339	.036
White Flour	.020	.018	.015	.060
Flax-o-lin	.413	.432	1.083	.251

It will be noted that corn is considerably less rich in alkalis than wheat, and, as generally used for human food, the alkalis natural to corn are to a great extent destroyed. The same is largely true of wheat, that is, white flour has these alkalis largely refined away, as shown by the above table taken from Sherman's "Chemistry of Food and Nutrition."

Now, I had lived almost exclusively upon a certain very popular corn cereal, white bread, meat, peeled and boiled and mashed potatoes.

Although potatoes in their natural state are richly alkaline, the alkalis are leeched out when they are peeled and boiled and drained, so I was procuring little or no alkalis from that source. Meat is a very highly acid-forming food. As everyone knows, the first thing a physician thinks of when a patient suffers from an acid condition, as rheumatism or neuritis, etc., is to cut out all meat from the diet.

The above table of alkalis proves how low the alkalis are in even the natural whole wheat and corn, compared with flax-o-lin. But the dainty, factory-cooked corn products and the wheat products (white flour) I ate were refined and had very much lower percentages of alkalis, for these had been removed in the refining processes used in making them dainty. And peeled and boiled and mashed potatoes, meat, white bread and other white-flour baking, denatured and factory-cooked corn cereals, all highly acid-forming foods, upon which I almost exclusively lived, had turned my blood highly acidosic. But when I turned to Roman Meal, milk and the sweet fruits, all rich in alkalis, aided in the start off by a complete fast of two weeks' duration, during which I eliminated a great deal of the acid accumulation and other cell-burdening detritus, I speedily changed my blood to the more alkaline state that must obtain if the body cells are to function normally.

Look over the above comparative table again and note that flax-o-lin contains twenty times as much calcium as white flour or whole corn, and very many times more than twenty times as much as the dainty, factory-cooked corn cereal of which I had freely eaten. Note, also, that flax-o-lin contains about four times as much magnesium as does whole corn and almost twenty-five times as much as white flour; that it contains three times as much potassium as whole corn and seventy times as much as white flour; that it also contains about eight times as much sodium as whole corn and over four times as much as white flour.

The reader is urged not to run quickly over these figures but to give to them a little thought and see how easy it will then become to understand the *modus operandi* of my getting well.

Will the reader try to visualize mentally that my body is made up of myriads of minute individual lives, called cells, that the Life Essence in these cells can only be maintained by life-containing foods that are conveyed to them in an alkaline blood stream, and that it is life force taken from living foods that makes these cells and the greater body they compose resistant to disease, but that I had eaten, almost exclusively, "excess acid" or acid-forming foods and foods from which the Life Principle had been removed, or in which it had been destroyed by prolonged factory cooking to the point of drying out, and then he will know—cannot fail to understand—why my body became sick and could not get well. If he will then try to visualize my body taking into itself a food rich in the alkalis, calcium, magnesium, potassium and sodium, as I have shown Roman Meal to be because it is one-quarter flax-o-lin, and try to see the acids that had been destroying the body cells being replaced by alkalis, thus relieving them of the need to fight for their existence, and then see the blood stream, now turned normally alkaline, carrying to the cells life elements derived from the living germ of both wheat and rye—those elements in seeds from which new life springs—which are contained in Roman Meal, he can have but little difficulty in understanding how and why I became well.

But I want the reader to get one more thought in connection with these alkaline minerals, Roman Meal and high blood pressure.

Incurable high blood pressure is caused by the infiltration of lime into the walls of the arteries, causing what are known as pipestem arteries, easily ruptured by internal pressure.

Potassium is used in the body largely as an agent to keep the solid tissues, as muscles, etc., resilient and free from hardness and rigidity. Sodium is largely used by the body to keep the fluids of the body, as the blood and lymph, in a state of greatest fluidity or least viscosity (ropiness). Now when potassium is low in the foods taken it must also be low in the body tissues; and the solid tissues, including the artery walls, must lose elasticity and tend to become rigid. Thus they do not so readily stretch to accommodate the inrushing blood when the heart chambers contract and force their contents out into the arteries. The low sodium content in the blood causes an increased viscosity in that fluid and this calls for a greater effort upon the part of the heart, and the increased rigidity of the artery walls also adds to that increased heart effort. Such blood cannot as readily pass through the capillaries and this raises blood pressure within the unexpanding arteries. The higher the pressure within the arteries the thicker the artery walls are made by nature in a reparative effort and constantly a greater effort is thrown upon the heart, and a vicious cycle is set up, as explained in a former chapter (twenty-five), illustrating another phase of high blood pressure. Moreover, the calcium in the blood has a greater tendency to crystallize out into the artery walls because of the absence of sodium from the blood, for it is one of the offices of sodium to keep calcium (lime) in solution in the blood.

Now note the percentages of sodium and potassium in corn and white flour and then note the same in flax-o-lin, as shown in the foregoing table. Flax-o-lin shows about eight times as much sodium as whole corn and over four times as much as white flour. Flax-o-lin also shows three times as much potassium as whole corn and seventy times as much as white flour.

This comparison, mark you, refers to whole corn, but most of the small percentages of sodium and potassium were removed from the dainty corn cereal which I ate so freely, and of which so many other misled people continue to eat so freely (and unfortunately feed to growing children), so that the sodium and potassium I obtained from this cereal source, to keep my artery walls expansile and my blood fluid, were almost nil. Besides, the vital or Life Principle in these foods was destroyed by removal of the life germ, and any that might by some accident have escaped was destroyed by the process of factory cooking to the point of drying out, at a very high temperature.

I even made the mistake in the beginning of cooking Roman Meal too long and thus destroying, to a large extent, its contained Life Principle. But I soon learned to cook it for only three to five minutes and set aside covered for twenty to thirty minutes, thus preserving the disease-resisting Life Principle inherent in the grains, with which to increase my body's fund of life and resistance to disease.

The reader will have noted that I opened this chapter by laying great stress upon the use of natural foods, also that throughout this book I have emphasized the use of natural foods. Well, there is a vitally important reason for this insistence. That vitally important reason ought now to be clear from what I have said in this chapter; but I repeat that natural foods alone have life which they can pass on to us. All foods can build the body, more or less perfectly, some well, some ill, but how useless it is to build the body even well if it is not at the same time vitalized and made resistant to disintegrating processes, or disease.

When we even partially realize to what extent the rising generations have been and ever increasingly are fed upon these devitalized and factory-cooked grain foods, we begin to understand why an ever-increasing number of young people die each year in civilization of the diseases of old age. But this book shows how the reader may avoid being one of these numerous victims; for nothing is surer than that this premature aging can be avoided.

U. S. readers should not ask for Roman Meal but for DR. JACKSON MEAL, the only alkali-forming grain food. (See footnote end of chapter thirty-five, page 327.)

CHAPTER THIRTY-SEVEN

PRACTICAL CONSIDERATIONS IN OPERATING THE REFLEX CHAINS.

In chapter thirty-five I discussed the simple, normalizing dietary and I hope I made it clear that the three simple meals outlined are alkalinizing, perfectly compatible, body-building and body-vitalizing, and their tendency is to normalize the body, bringing all parts into harmony, regardless of the disease-condition that may disturb it. In chapter thirty-six I showed the important place which whole grains hold in the normalizing dietary and the unique place that Roman Meal holds amongst whole-grain foods.

But I wish to emphasize, what I have already stated, that the best dietary in the world cannot be counted upon, by itself, to immunize the human body against disease. It may, and will, keep the body longer from falling into decay or disease than a poor dietary, but if the muscle, skin, sleep and emotional reflex chains are all neglected, disease is approaching and, sooner or later, it will embrace the body and lay claim to it. As for those bodies already in the embrace of disease, they must learn that their sure way out of that embrace, with no chance of again being taken within its unpleasant fold, is to make use of all the reflex chains for the complete normalization of all the bodily functions, and thus perfect the body and render it naturally immune from disease.

But which of the other chains comes next in importance to the food chain? Of course, theoretically, the answer should be all of them, since none of them can be perfect if all are not perfect by being duly stimulated through contacting their natural stimuli. Practically, however, the skin reflex chain is next in importance to the food reflex chain, for the reason that when the skin is properly looked after the body is also fairly generally exercised, as will appear when I discuss the taking of baths.

It goes without saying that, if the skins of civilized mankind are not given proper care, poisons will increase in the blood, and then the best diet in the world must have its body normalizing influence aborted.

Next to the kidneys, the skin is the greatest eliminating organ of the body. Indeed, it is probably a much greater eliminating organ, for, if the kidneys cease functioning, the body will live for a few days, but if the skin function is completely prevented, as by painting the body surface with an impervious coating, the body will be dead within a few minutes. The reader is urged to be sure to get this point fixed in the memory, as well as in the understanding, for it will mean much in the comprehension of the cause and prevention of disease in his own body.

Recall the story told of the gilding of a beautiful young child to represent an angel during the inauguration ceremonies of one of the popes at Rome. The almost immediate death of this child is proof of how important skin function is; and also of how vitally important to the development of immunity from disease is the development of the full functioning power of the skin and its so-important appendages.

Proper care of the skin means regularly exposing it, as nature intended, to direct contact with its natural stimuli obtaining in the environment, or their equivalent, upon which I shall dwell further on.

I have elsewhere (chapter thirteen) described very briefly the anatomy of the skin and its appendages and shown that the functions of these structures can only be normally stimulated by exposing the nude skin to contact with the environment, and that this primary stimulation sets up a whole chain of important reflex functions, and if this natural stimulation is avoided the defensive functions belonging to the skin and its chain of reflex functions tend to be destroyed. But the skin-body functions are not the only ones to be affected when they are neglected. Their depression also depresses all other body functions through the interrelations of the reflex nervous system. Knowing this, surely no intelligent health seeker will fail to comply with nature's rule.

Of course, it must be realized that it is not, perhaps, necessary to go to the extent that I, personally, do in order to stimulate the normal skin function, and thus the entire skin chain of body functions. But, once properly started on this body normalizing venture, the appetite grows for the thrill that comes from skin contact with its natural stimuli, or their equivalents, and one comes to enjoy and look forward to enjoying the stimulating contacts of the coldest water or wind with the nude body.

The reader is asked to remember that it is not necessary that the body be constantly in direct contact with the natural environmental stimuli, but only is it necessary for a short time each day, the essential requirement being regularity; just as in the development of muscles the requirement is regularity of short-time exercises rather than constancy of effort.

Constancy of skin stimulation, of a sort, is necessary; and it is to be obtained by the wearing of light-weight, porous clothing, which allows some light and air to reach the skin.

Of course, it is true that the muscles cannot reach their highest point of functional perfection, unless they are regularly exercised up to the highest pitch of activity of which they are capable without bringing on exhaustion, for at least short periods every day. It is equally true that the skin cannot be developed to its highest possible functional power or perfection as an eliminating and protecting portion of the Defensive Mechanism; unless it is subjected to the widest extremes of environmental strain that it is capable of withstanding without exhausting its defensive power.

But the beginner does not need to be concerned about this extreme exposure. Let that be considered when the physical tone has been so normalized that the extremes of environmental change are a challenge to the constantly-increasing vigor of body and mind, as is sure to be the case if the skin has been properly and regularly trained by environmental contacts, gradually increasing in rigorousness of exposure.

Having emphasized the importance of the skin reflex chain, in its relation to the other four chains of the Defensive Mechanism, I now wish to pass on to a consideration of the muscle chain and will again take up and complete the consideration of the skin chain in connection with baths, thus preventing unnecessary repetition.

CHAPTER THIRTY-EIGHT

SYSTEMATIZED MUSCLE EXERCISES.

Undoubtedly there are those who would place the mental or emotional reflex chain as next in importance to the food and skin reflex chains. But I place the muscle chain third in practical importance, for if the body is fed upon vital natural foods, and thus the food reflex chain is normally stimulated; and if the skin has been allowed to contact its natural environmental stimuli, or their equivalent, and thus the skin reflex chain of functions is also normally stimulated; and then the great muscle reflex chain is set in motion by systematized physical exercises and out-of-doors walking, etc., and each of these chains is exerting a tendency to normalize each other and all functions of the body, as they do, then it is not difficult to visualize the mental and emotional reflex chain automatically and unconsciously set in operation by the medium of automatic, uplifting suggestion finding positive expression through the medium of optimistic, constructive, and health-inducing thoughts.

Only a cataclysmic shock or tragedy entering the life of one whose food, skin and muscle reflex chains of functions are all normally stimulated, and are, therefore, functioning normally, can cause the mind, the Primary Reflex Generating Centre of the emotional chain, to send out abnormal stimuli to the functions under its control, in the form of negative or depressing and disorganizing or destructive thoughts, and thus depress the whole chain; and, to an equivalent extent, depress all the body functions by reflecting such depression over to the other functioning chains. Even this will not often happen. Perhaps it could never happen if these chains were really normal. It is difficult to positively say, for who in civilization has these three entire chains functioning normally?

We, therefore, decide that the muscle chain comes third in point of practical importance; and we are convinced it must have an important part to play in the human Defensive Mechanism and the development of a natural immunity from disease.

But how are we to bring into full functioning this muscle reflex chain? Only by naturally stimulating it. And the only natural stimuli to this chain are found in active, will-directed, muscular exercises. For it is true that in order that these stimuli shall be most effectively applied, muscular exercises must be systematized, which includes their direction by the intelligence and will. Systematized exercise means the exercises are designed to exercise all the voluntary muscles, and with great regularity, implying that at certain times, or a certain time, every day the voluntary muscles must be put to certain effort—exercised.

How shall we proceed with the systematizing of our exercises? Shall we have to join a gymnasium or install expensive equipment in our own homes and devote a lot of our valuable time to muscular exercises? By no means. These may be very valuable methods of gaining muscular power and control—I do not know, for I have never had any experience. But the experience I have had proves that they are not necessary. My own muscular development is about 100 per cent., yet I have never had a minute's exercise in a gymnasium, or a swimming pool, or with any other equipment than a bed, a wall and a swinging door; and every mother's son (or daughter) has these.

My own method is very simple, yet it develops every important voluntary muscle group in the entire body.

I begin the day with physical exercises, a description of which follows. For it is positively not a fact that, as some people vainly imagine, the taking of brisk morning exercises depletes the vitality needed for the day's work. On the other hand, physical exercises, properly taken, liberate energy and electrify the body's functioning cells, enabling the body to far more exactly function throughout the day, regardless of the type of work it is called upon to perform; but this is especially true if the work is of a sedentary or mental nature.

Note.—Women need not fear developing humpy, male muscles. They could not if they would; they are moulded differently. Well-exercised female muscles only the more beautifully round out the figure and extremities, proven by the perfectly-rounded forms of female circus performers, gymnasts, swimmers, etc.

Movement (1) Lie on back, hands beneath head resting on pillow. Raise the entire body between heels and head from the bed. Lower to bed and relax. Repeat five to fifty times, starting with five.

(2) Cross arms over chest, hands grasping opposite elbows. Lie flat on back. Raise body to sitting posture and at same time draw hard upon the arms and hands. Lower body to bed again. Repeat five to fifty times.

(3) Lie on right side, head on pillow. Lift body upwards until it is resting only on side of head, tip of shoulder and feet. Lower body to bed and repeat five to twenty-five times. Reverse sides and repeat.

(4) Lie on right side and place right hand upon the waist of left side just above the hip bone. Raise the body from the hips upwards sideways as far as possible and at the same time strike downwards towards the feet with the closed left fist. Drop back to bed again and withdraw fist to shoulder. Repeat the movement, striking out with the free hand fist closed, with each lifting of the body. Repeat five to twenty-five times. Reverse sides and repeat.

(5) Lie on right side. Stretch right arm outward and downward. Place left knee on right palm and by pressure from knee hold hand to bed while traction upon right arm lifts the trunk off the bed from hip upwards as far as possible. Let body drop to bed again and repeat movement five to twenty-five times. Reverse sides and repeat.

(6) Lie on back. Grasp uprights of headboard of bed, or upper end of mattress or springs with both hands. Lift legs upward overhead until toes touch the headboard. As the strength increases, slip downward farther towards the foot of bed until you can only reach headboard. Repeat movement five to twenty-five times.

(7) Lie on abdomen. Lift the body upon elbows and toes until upper arms are fully extended at shoulder joints. Lower to bed and repeat five to twenty times.

(8) Lie on abdomen. Draw the face down until upper forehead rests on bed. Clasp the hands behind the hips, fingers interlocked. Lift body between forehead and toes entirely from bed, bearing weight on toes and forehead. Lower to bed and repeat five to twenty-five times (not more than five at first).

(9) Retain same position. Make outward traction on arms that can be felt all the way up arms to shoulders, and raise the upper body at same time up and backward as far as possible, throwing shoulders well back as body rises. Repeat twenty-five to fifty times.

(10) Lie on abdomen. Place palms on bed opposite armpits. Hold spine and legs rigid and push the entire body up full arm's length so that it rests only on hands and toes with the spine straight. Lower to bed again and repeat five to twenty or thirty times.

These movements do not exercise all of the body muscles, but they do exercise most of the important groups. They ought to be taken in the nude in a cool or cold, or at any rate a well-ventilated, room. If begun in winter, in a northern climate, they may at first be taken in a warmed room with a window opened. Later in a cool room, that is, a room that has been just cooled by opening a window. But if the window has been opened all night, as it ought to be, then exercise in such a room with the heat just turned on and the window closed. Still later, when the arrectores muscles and the glandular elements and skin capillaries have begun to respond to the cold stimuli, these exercises may be taken in a cold, wide open room, that is with windows opened to the outer air and no heat in room; with the utmost safety from taking cold.

If beginning in summer, the exercises may be taken in a wide-opened room from the start, then as autumn comes on the windows may be kept open all through the night, at least a small bottom opening and a larger top opening, with no heat in room at night, and the exercises may be continued in the unheated and well-opened room right on through the winter. And if kept on through the summer and into the winter there will be no inclination to close the windows on the coldest mornings, for the cold is but a sort of challenge to the vitalized individual to pit his vital resistance against its rigors, the victory always going to the vitalized individual, with many hours of thrills coursing through and through the body following the exercises. The reader will understand this when he understands that the vitalized man or woman becomes vitally-minded and seeks opportunities to pit the physical resistance against environmental strains, and constantly thrills to these contacts because they revitalize the contacting body.

Of course, the windows may always be closed in a northern climate on the coldest mornings and do no harm, but the vitalized person will not want them closed. A vitalized individual always accepts a challenge, if it is an honorable one, and the challenge from cold is an honorable one that will never be turned down—a proof positive to the health-seeker that at last the body is positively vital and filled with resistance that cannot be overborne, except from within; by changing the vitalizing to devitalizing living habits.

The best time to take the foregoing exercises is the first thing on waking. The beginner will, of course, be careful not to overdo at the start, for overdoing is apt to bring on a condition of myositis, or inflammation of the muscles, which will halt all exercises, often for months. For the first two weeks, the exercises ought to be just enough to learn the movements, unless one has been accustomed to taking some form of exercises and the muscles are already toned up. This learning of movements will gradually develop tone, then is the time to begin to increase gradually the number of times each movement is repeated.

In cold weather, however, they should always be taken with sufficient snap and vigor to keep up the circulation, then retire to bathroom and respond to nature's calls. If one is dieting properly, the bowels will be ready for almost immediate evacuation.

In really cold weather, it is always well for the beginner to keep the window closed until this function has been attended to; then open the window to ventilate and air the room and sufficiently cool it that it will act as an effective stimulus to the skin and its appendages. In the early period of skin training, if in winter and the day is cold, the window may then be closed. But the skin reflexes soon become so active and the vital body so resistant that the open window is enjoyed, and it will not be closed.

There should be no very unpleasant odor from a bowel evacuation, if the diet is natural and in accordance with the principles enunciated in chapter twenty-eight. If there is an odor at all more offensive than that which is present in the stool of a healthy, properly-fed babe, then the diet is not the kind I have laid down. If there has been no error as to what is eaten, then there is some error as to what is mixed together in the same meal, or too much has been eaten for the digestive capacity to properly care for, and fermentation and decomposition of the partially-undigested, or non-digested, food materials have taken place in the food canal, resulting in the putrid and offensive odor. And it would be well if that were all, but where these offensive odors come from there are poisons, and these are being absorbed into the blood. Keep this fact in mind as an indicator of the kind of eating habits that are being followed. This knowledge can be made of very great importance.

But the calls of nature have been attended to and the room is cooled and aired. Now the toilet may be made, as far as it is made in the bathroom. Then comes another set of exercises, as follows:—

Movement (1) Stand with back to mirror. Without moving feet on floor, turn body about and try to look reflection direct in the face. Reverse and repeat ten to twenty times.

(2) Remove slippers. Stand slightly toeing in. Slowly rise to tiptoes and slowly return until heels rest on floor. Repeat ten to fifty or more times.

(3) Same position. Raise front part of foot upwards as far as possible, keeping heel to floor, first one foot then the other, raising each foot twenty-five to fifty times.

(4) Stand with feet about ten inches apart, hands on sides just above hip bones. Bend well forward, keeping legs straight. Still bending, swing body around to right side, then on, bending backwards as far as possible, then on around, bending to left side to starting point, ending well bent forward. Reverse and repeat ten to twenty times each way.

(5) Bend head far over to right. Place right hand on top and upper or left side of head and while raising head

to perpendicular with neck muscles resist with the right hand. Reverse the movement and repeat five to twenty times.

(6) Bring chin down to chest. Place the clenched fingers back of head and while raising head upright by neck muscles resist with the arms and the clenched hands. Repeat ten to thirty times.

(7) Throw head far back. Place the "heels" of both hands under chin and while bringing head to upright position with neck muscles resist with the hands and arms. Ten to thirty times.

(8) Place feet side by side about six inches apart. Bend directly over to right side, touching outer side of leg as far below knee as possible, and at same time throw up and over the head the left hand and arm. Reverse movement and repeat twenty to fifty times.

(9) Same position as (8). Close fists firmly. Turn arms outward until the thumbs point directly backward, making the muscles resist. Reverse and turn arm inward until thumbs point directly backward, making muscles resist each other. Repeat twenty to fifty times each way.

(10) Same position. Interlock fingers of both hands behind hips. Draw the shoulders well downwards, then back, up and forwards to point of starting. Repeat ten to twenty times. Reverse and repeat twenty or more times.

(11) Stand with balls of feet ten to twelve inches apart, heels off floor. Squat until the hips just contact the heels, at the same time raising the arms straight outward and up until they extend at right angles from body at shoulder level. Rise to standing position, dropping arms to side. Repeat five to fifty times.

(12) Stand about thirty to thirty-six inches away from a wall. Place palms against wall about twenty inches apart. Let body fall forward until chest almost touches wall. Check fall by arms and then straighten arms and push body back full arms' length. Repeat ten to fifty times.

(13) Swing room door half way open. Stand about a foot from its free edge. With one hand give it a quick swing as if to slam it shut, but with the other hand check

A BOYHOOD stunt. An absolute demonstration of youthful control of nerve and muscle—possible only to the perfectly fed.

A BALANCE of body only possible to be built by using a perfectly balanced food. Roman Meal is a perfectly balanced food

LOOKS easy! Try it, holding absolutely motionless while being photographed, after being focussed and posed—a real stunt.

it in motion at arms' length and slam it back in opposite direction, but before it strikes arrest it again and slam in the opposite direction. Repeat twenty-five to one hundred times, very forcibly and quickly.

(14) Stand tall (as if trying to make body height great as possible), then stretch arms out in effort to reach wall three feet away. (It can't be done but try it very hard, to stretch muscles.) Retract arms and repeat five times. Same position. Rise on tiptoes and stretch arms directly downward as if trying to reach floor. Retract arms to shoulders and drop heels to floor. Repeat five times very energetically trying to reach floor. Same position. Rise on tiptoes and stretch arms straight out from shoulders sidewise, trying to reach sides of room. Retract arms to shoulders, lower heels to floor. Repeat movement five times, hard. Same position. Rise on tiptoes and stretch arms straight upward trying to touch ceiling—try very hard. Retract arms and lower heels and repeat movement five times. Same position, with back about two feet from wall. Stretch arms upward and back as if trying to reach up to the cornice back of and above the body. Retract arms and straighten body to perpendicular. Repeat five times.

(15) Stand on one foot balancing and stretch arms out in front as far as possible, at same time stretch free foot backward, toes pointing back, to the very limit, trying to touch one wall with finger tips and opposite wall with tips of toes. Retract both arms and leg, bringing foot towards hip, at same time slightly bending leg you're standing on. Then shoot arm and leg out full limit they can be stretched to as before and at same time straighten the standing leg. Repeat in all five times. Reverse legs and repeat.

These exercises can be done in fifteen minutes or in one hour, depending upon how many times each movement is repeated. Surely any level-headed person can spare at least fifteen minutes each day for the normalizing, muscular exercises until the muscle tone has increased to that point at which it will become easy to do more and more, because of the mere pleasure of exercising and experiencing the physical thrill that follows it.

When you have gone through these various movements you will have exercised every important voluntary muscle in the body, and if you have been reasonably careful will have strained none. "Reasonably careful" means not to overdo at the start. And if you have done the exercises with sufficient vim, yet without jerky movements, you will be breathing deeply. Deep breathing means you are taking lots of oxygen into the blood. Increased oxygen intake stimulates the force and frequency of the heart beat. Increased heart action means increased circulation of the oxygen-rich blood. Oxygen-rich blood stimulates the glandular secretions. The secretions of some glands are the natural stimuli that cause function in other glands; and their secretions act as stimuli to still other glands; and the secretions of these to still others, and so it goes around the entire circle, as already explained.

But this increased oxygen intake also burns up (oxidizes) body waste and eliminates it, unless the exercises are carried past the point where exhaustion begins, when waste production exceeds waste elimination and results in waste accumulation within the tissues.

But the organs themselves are built up out of the material substances floating in the blood stream. Increased circulation of this oxygen-rich blood brings more building materials to the organs and, what is of equal importance, more vitalizing material, provided the diet is a natural one. The organs are thus given a better chance of building themselves normally, and also of becoming vitalized, thus increasing their resistance to all body-disintegrating influences, or disease, as the reader already understands.

But the greatest benefit that comes to the human body from physical exercise I have left to be considered last.

In chapter eleven I made reference to the way in which exercise of the voluntary muscles is transferred or reflected over to the heart and arteries. But this is just as true of the involuntary muscular structures wherever found, as in the walls of the stomach and intestines (see chapter twelve). These organs are not in any way connected with the will, therefore they cannot be directly exercised. But, indirectly, they can be exercised, by exercising the voluntary muscles. Every reader must be familiar with the fact that physicians constantly recommend physical exercises for the habitually constipated. And those who have followed such advice know it is effective. But when it is effective it is due to one thing only, and that is increased activity on the part of the muscles forming the bowel wall. Still we know that exercise of the voluntary muscles has no direct connection with the intestinal muscles. How, then, has this increased activity of the bowel muscles been effected? By the simple process of transferring to the involuntary muscles, through the reflex nervous system, the muscular impulses felt in the voluntary muscles which are under the control of the will. In other words, this increased intestinal activity is one of the functions tied up with the muscle reflex chain.

And by the way, this same intestinal activity forms one of the reflex functions of the gastro-intestinal reflex chain, since all natural foods also set up an increased activity in the intestinal muscles.

But let us return to the heart and arteries. We saw in chapter eleven that the only way in which the heart muscle and the muscles in the artery walls can be exercised, and thus long retain their normal range of power and elasticity, or expansibility and contractility, is by active work upon the part of the voluntary muscles. In the absence of such exercise by the voluntary muscles, these involuntary muscles become comparatively rigid and stiff and, after the lapse of more or less time, lose reserve functional power to such an extent that a sudden strain, as a hurried run or walk or great mental excitement, is apt to cause death, because the impaired heart muscle cannot respond to the bodily need caused by the sudden strain or demand for heart activity. Being under control of the reflex nervous system, it is compelled automatically to make the effort, but the effort overwhelms it.

And this is still far from being the whole sad story of a failure to vigorously exercise the voluntary muscles. The reader is urged to re-read chapters eleven, twelve and twenty-five in this connection to complete the mental picture of the havoc being worked in civilized human bodies by deficient muscular exercise.

My reason for touching upon this phase of human health destruction in connection with systematized physical exercises is that I may the more effectively impress upon the reader that the rapidly-increasing death rate from high blood pressure, heart failure, heart disease, angina pectoris, certain forms of kidney disease, etc., could largely be checked and prevented by the use of systematized physical exercises and simple, natural foods, begun early enough in life.

The foregoing are the diseases of very old people, if they are natural to human beings at all, yet they are causing the deaths of hundreds of thousands of young persons, under forty, amongst the civilized peoples each and every year, with the percentage so afflicted rapidly increasing, as shown by life insurance tables.

Let me emphasize that the starting point of these diseases is generally tissue-devitalization through eating unnatural, devitalized foods, coupled with atonicity or flabbiness of the muscles, by which the veins lose their natural supports, allowing the walls to dilate and the valves to become incompetent, thus permitting the venous circulation to back up against the capillaries.

Keep the body tissues vitalized by eating natural, therefore vitalized, therefore vitalizing, foods that will also operate the entire food chain of reflex functions. Keep the skin toned up by natural contacts, meaning environmental contacts, so that it will eliminate body-developed and food-deposited toxins and set in operation its cycle, or chain, of reflexly-operated body functions. And also keep the voluntary muscles toned up by systematized muscle exercises, to call out their full chain of organic and functional activities. Do these things regularly, using reasonable intelligence and will in their devising and control and these diseases must all but disappear, at least in all but the very old.

But just as surely would the tendency to disease in general be checked if the three great chains of functions controlled by the skin, natural foods and muscular exercises were compelled to normal function by properly submitting their Primary Reflex Generating Centres to their natural stimuli: environmental contacts, natural foods and systematized muscular exercises, for these being normally stimulated, the remaining two chains would automatically function normally.

CHAPTER THIRTY-NINE

THREE KINDS OF BATHS—LIGHT, AIR, WATER.

Hygienists are prone to stress only one kind of bath, the water bath, and to supply only one reason—and that a minor one—cleanliness, for the taking of this bath.

Although I characterize cleanliness as a minor reason why we should bathe in water, I would not be understood as implying that this is a trivial reason for bathing. It is a really important reason for the bath, as it is ordinarily meant, and yet there are other kinds of baths and other reasons for bathing of such transcendent importance as to make cleanliness, by contrast, trivial.

And it is because we have generally recognized only the esthetic or cleanliness reason for bathing, and because most people have not even dreamed of any other than the water bath nor of any other reason for taking it than cleanliness, that we have made of the bath an instrument to aid our many other devitalizing habits in lowering the vital resistance in the bodies of civilized human beings.

I have pointed out already that nature intended us to live in the open, our nude bodies exposed to the changing environment, among the constituents of which are moving air or wind, rain, fog, dew, heat and cold, etc. In order that this changing environment need not be injurious to us, nature provided us with a Defensive Mechanism capable of responding in a protective or defensive way to contacts with the natural stimuli to its function which obtain in the environment.

So long as that Mechanism is functionally perfect in each of its component parts, the body must be perfect, and so long as the body is perfect it must be immune from disease.

However, that Defensive Mechanism is subject for the maintenance of its perfection to the law that only naturally-stimulated organs, cells or body parts function normally;

also to another important converse law: all unexercised, under-exercised, interfered-with or impeded cells, organs or functions tend to be destroyed.

In other words, that Defensive Mechanism can only continue potentially capable to defend the body if it is continually allowed to defend it; also the more its defensive function is called into use, the more functionally powerful for body defense does that Mechanism become, according to the law: "all organs, etc., increase in functioning power the more they function, up to but never beyond that point where exhaustion begins." But if it is not thus allowed to defend the body it loses the power to defend. Its defensive function tends to be destroyed.

What, then, are the facts with regard to the civilized human body and its Defensive Mechanism? Are civilized bodies allowed or compelled to defend themselves against the strains incidental to sudden environmental changes, which may be more or less extreme, and thus to continually develop and maintain the potential defensive power of that part of their Defensive Mechanism pertaining to the skin?

Well, we have invented houses, luxuriously-heated houses, and comfortable clothes of many and various kinds which—but turn back to chapters thirteen and fourteen.

In chapter thirteen I roughly sketched the anatomy of the skin in its relation to the human Defensive Mechanism. In chapter fourteen I showed some of the health handicaps imposed upon civilized peoples by themselves, through their habits of swaddling the skin. For a clearer understanding of what I am about to present in this chapter, I urge the reader to re-read these two chapters. And, while I do not urge it, I believe it would enlarge the reader's grasp of the subject to re-read the two preceding chapters, eleven and twelve, also.

The habits of civilization which impose the health handicaps to which I have referred are, in so far as they relate to the skin, the living in houses and swaddling the skin in layer upon layer of clothes. By these unnatural (mark, I do not say unnecessary) practices we absolutely shut the skin out from every direct contact with its every natural stimulus (excepting that of heat). Contact with the wind, the sun's rays, rain, fog, dew and cold are all guarded against by impervious clothing. This constitutes an interference with function, and we already know that any such interference tends to destroy that function. Thus we know that the defensive function of the human Defensive Mechanism, as it pertains to the civilized human's skin, is more or less destroyed, by cultivating the above-mentioned civilized habits.

Now, if the human environmental Defensive Mechanism is, to a greater or lesser extent, destroyed, it is easy to see that the natural immunity of the human body—the immunity that God must have intended it to possess—must also be destroyed. And, if that immunity is to be restored, the Defensive Mechanism, in all its parts, including the skin, must be first restored.

But how are we to restore the environmental Defensive Mechanism? Return to primitive living habits, and live nude out of doors? By no means. Well, then, how?

I answer in two words—*by bathing*. But these two words mean more than they seem to mean. Of course, I want it distinctly understood that the environmental Defensive Mechanism to which I am now referring is only that part of the whole Defensive Mechanism, consisting of the five chains of reflex functions, that has to do with defending the body against environmental stress.

When we speak of bathing, we, ordinarily, mean bathing in water. But I extend the meaning of the word to include light baths and air baths. By properly bathing in water, air and sunlight—or light rays from the sun—we can restore to normal, and there maintain, that portion of the human Defensive Mechanism that pertains to the skin.

That we may come quickly to an understanding of what I aim to teach, I wish here again to present a principle of development with which everyone must be familiar, viz., that in order to develop normal muscular power, the potential power of the muscles must be developed by exercise of the muscle function. Everyone understands that, inside of the limits where exhaustion begins, the more we make the voluntary muscles work, the larger and more powerful they become, until they reach the limit in size and strength set by their heredity.

But everyone also knows that it is quite unnecessary that muscles be made to work *all* of the time to achieve their highest development. It is only necessary that muscles be systematically and regularly exercised for a few minutes each day, in order that they may attain to the full limit of size and power set for them by heredity. Everyone, I say, knows these facts, and yet few seem to have recognized in them evidence of a principle that is universally applicable to all organs and functions.

It is that principle I make use of in restoring full functional power to the skin and its appendages as important parts of the general Defensive Mechanism.

In Basic Principles I enunciated a law—already referred to in this chapter—which is in full control here, viz., "all functioning cells, organs and body parts increase in functioning power by functioning, up to but never beyond that point where exhaustion begins." Now let us apply the analogy of the muscles, and this law, to the skin and its appendages and their functions.

The skin and its appendages are, like the muscles, organs and body parts. The muscles increase their functioning power by functioning, and lose functioning power when they do not function, in accordance with the two laws already cited in this chapter.

Like the muscles, the skin and its appendages will lose power to function when they do not function, and gain functioning power when they do function—the more they function the more powerfully they can function; up to but never beyond that point where exhaustion begins.

But the skin and its appendages cannot function normally unless the skin is allowed to directly contact its natural stimuli: the sun's rays, wind, rain, fog, dew, heat, cold, etc. And this cannot be accomplished when the skin is constantly covered by clothes, worn in heated and sun-excluded rooms. Clothes aim to do for the skin *vicariously* what nature intended it to do for itself, a breaking of another law laid down in Basic Principles, which brings with it the destruction of the skin's defensive power. (See law number eight in Basic Principles.)

But it is as unnecessary for us to go naked constantly, in order to reconstruct the skin's defensive function, as it is to exercise constantly the flaccid muscles, when we wish to develop normal muscular tone in the muscles. It is only necessary that we give the skin a light or sun bath, an air bath and a water bath at regular intervals, but these intervals must be of short enough duration that the effect will be cumulative; or so close to each other that the tonic effect of one such set of baths shall not have worn off before the effect from another set is added.

If these baths can be taken out of doors, so much the better; which shows why beach bathing is so beneficial to the general health. It stimulates the entire skin reflex chain of functions.

However, in the more northerly countries, this method is not available in the winter season, the very time when it is most necessary to counteract the effect of covering the skin with several layers of clothes and living in heated houses. But when the best thing is impossible it is wisdom to adopt the next best, and thus we are forced to adopt the method of bathing in a well-ventilated room before an open window, through which the sun-lit, sun-irradiated wind is blowing. The window should be arranged, if possible, so that the light can fall upon the body through the open portion, for it is now well known that ordinary glass intercepts the beneficial rays in sunlight—the ultra-violet rays. However, my own feeling is, supported by my experience, that the ultra-violet rays, or their effects, are carried by the moving air or wind and when it falls on the nude body through an open window the body is being irradiated, more or less, as if it were in the open out of doors. But, in any case, the nude body should be placed directly in front of the open window where the moving air can blow upon it; and, while the body is thus contacting the moving air, especially in winter, it should be constantly, vigorously exercised or frictioned by the palms of the hands to keep up deep breathing and oxygen intake and thus increase the manufacture of heat within the body, and also to increase the superficial or skin circulation so as to bring that heat to the surface and prevent access of the external cold to the body and the internal congestions that come from surface chilling of the body.

A good way is to expose the body thus for a few minutes —long enough to give it a thorough frictioning from head to feet, including the scalp and the soles of the feet. Then step back far enough to take whatever exercises have been decided upon. Then follow the exercises with the cool or cold water bath, and this by a thorough pommeling of the body surface with the closed fists, and this by another friction of the skin to the point of complete reaction—the overcoming every tendency to a chilly sensation.

In my own case, I get accustomed to the chill air contact by taking my bed exercises nude in a cold room, opened all night to the outer air and still open when I exercise. Then I close the window, turn on the heat and retire to the bathroom and, except when the weather approaches zero, open the window while I shave, respond to nature's calls and perform my ordinary ablutions. Then I exercise before an open window and follow with my cold water bath. The bath finished, I wring my washcloth into a tight roll and grasp it in my two hands close together, palms down, and make rapid striking movements forward and back with both arms at level of my shoulders, snapping my whole body back and forth in unison with the striking arms one hundred times. Then, with arms extended straight forward from shoulders, still grasping the roll, I jerk arms snappily and very fast from side to side, one hundred times. These two movements, properly performed, bring most of the muscles of the trunk, arms and legs into play and form a splendid exercise in themselves. I then rub myself down with the not-too-well-wrung-out washcloth, step out of the tub and let my skin dry in the moving air by standing as near to the open window as I can get and let the wind blow on me while I pommel my body from scalp to soles of feet and toes and then friction my entire body that I can reach with the palms of my hands, moving very rapidly. I do not dry my body with a towel, but let it dry in the wind, as my ancestors must have done when their skins were wet with rain, fog and dew in those dim ages when they were evolving the Defensive Mechanism which I am trying to revive by submitting it to conditions akin to those which they had to defend themselves against thousands of years before there were towels.

There is no lunacy in this, as many will be disposed to assume; and a little thought will prove the act to be guided by simple commonsense: For the one way in which the skin can learn how to defend the body against the environment and its changes is to make it defend the body. And this cannot be done while we are dressed in clothes, which civilized custom compels us to wear. The fact that I once was rarely without a cold and that I have not had a cold for the last twenty years is at least proof that it does not give one colds. Nor does it rob one of vitality, for after I have so treated my body and dress and get out upon the street, in the winter an hour and a half generally before daylight, I am almost forced to run with the sense of vitality that I feel surging through me, probably as a result of the direct contact of my skin with the irradiated air. For, although the sun is not up, I feel that the radiant energy which passed into the atmosphere with the preceding sun must still obtain in that atmosphere and that the wonderful thrills I experience from these cold contacts with my nude body are, at least in part, due to the absorption of that sun's energy by my body. But, let it be explained as it may, the fact is that I do feel rejuvenated and am still thrilling when I have walked almost five miles without food and following an hour's stiff exercises and the cold bath in a cold room as just described. At seventy-five I feel like sixteen and I assert positively that although I work practically 365 days a year and from early morning on into the night between nine and ten p.m., I am never really tired, and after working all those many hours I invariably run a number of blocks on my walk home, especially in the winter when it is cold.

One would think that the first contact of the nude skin with the chill air in a room open all night to zero weather, or below, would be the experience of a rude shock, but this is not the case at all, when the arrectores pilorum muscles, the skin capillaries and glands have been trained to function normally and respond to these natural stimuli. When this has been done, at the first cold contact those structures immediately insulate the body against access to it of the external cold and escape from it of its internal heat. And, since the first reflex effect of cold applied to the skin is to add more oxygen to the blood through deep breathing, there is an immediate increase of body heat by increased internal oxidation.

At the first touch of cold to the skin the arrectores muscles contract, and this condenses the skin cells and layers which form it and the skin capillaries contract and force the superficial blood into the hot interior of the body, all accomplished by the reflex nervous mechanism with sensitive terminals located in the skin. But almost immediately there is a reflex reaction and the hot blood is pumped back again to the surface by the increased heart functioning caused by the increased oxygen intake which follows the deep breathing. Simultaneously the skin capillaries dilate in response to a reflex message, to receive this hot, resurging blood, and they become engorged with hot arterial blood, as shown by the flushed skin of the hands and face when exposed to the cold air. But this heat brought to the surface is largely prevented from escaping by the condensation of the skin, and the consequent body insulation by the skin, yet there it remains at the body's surface to combat the ingress of the external cold.

All this is, of course, a part of the automatic reflex defensive function of the Defensive Mechanism, and, just as the normal muscles get a ringing thrill out of vigorous physical exercise, so does the normal skin get a ringing thrill out of direct contacts with the cool, moving air, or wind; cool water and the unimpeded rays of sunlight.

Of course, all this is true only of the skin and appendages that have been normalized by training through a considerable period. One would not expect the untrained skin to enjoy or thrill with the contact of a below-zero temperature at its first exposure; nor would one expect the same untrained skin to enjoy a cold bath any more than one would expect an untrained set of muscles to thrill with vigorous exercise.

This brings up the matter of method. How shall we proceed to normalize the skin so that it will enjoy an unimpeded contact with cool wind, cool water, plus the light bath that goes with these; and, at the same time, through these contacts, build up the body-defensive powers inherent in the skin?

First, one should reduce the amount of clothing to the minimum, and such clothing as is worn should be porous enough to allow air and some light to reach the skin. In summer, this is very easily arranged. Personally, I wear no underwear the year round, and light-weight outer clothes so porous, even in winter, that I feel the cool or cold breezes searching every part of my body. But I walk everywhere and keep up a good circulation and enjoy the cool contacts.

Of course, I do not advocate clothing the man thus who has to sit on a wagon, or remain comparatively motionless at some other form of out-of-doors work, during the cold winter days in northern latitudes; but the man who drives his own closed car or who rides a street car need not be bundled as it is the habit of civilized people to bundle themselves in the cold weather. And those men whose outdoor work may compel the wearing of thick, impervious clothes ought to have more of the skin training such as I have outlined through exposures to wind, cool water and light baths to overcome the handicap which the skin suffers from the compulsory swaddling in heavy clothes.

But always the beginner will wish to wear underclothes and they ought to be the lightest weight, loosest and most open-meshed fabrics obtainable. This is imperative if breathing by the skin, or its defensive functions against environmental strains, are to be revived; and through these primary functions revive functional activity in the entire chain of functions tied up in the skin chain.

Yes, it is a fact that the skin breathes; just as do the lungs, throwing off poisonous carbon dioxide and taking in life-giving oxygen. Rather, that is what the skin is supposed to do, but when it is cluttered up with insulating clothing it throws off poisonous gases and poisons in solution in the sweat and reabsorbs or rebreathes these same poisons back into the blood.

Even the sweat glands, intended to be great eliminators of poisons from the body, lose their poison-eliminating power when the body is continually heavily clothed. When the underwear happens to be woolen, the sweat that is thrown off is taken up by the wool, which holds moisture tenaciously, and the sweat and its poisons are held in contact with the absorbent surface of the skin and much of the extruded poison is reabsorbed and must then be excreted by the kidneys, throwing a huge additional burden that nature did not intend them to bear upon these vitally important organs. Now, when we realize that it is retention of body poisons that ages the body, and eventually kills the body by degeneration and disease, we can begin to see how vitally important this elimination and breathing by the skin are.

It will also begin to dawn upon the reader's intelligence why it is that I practically never tire; because I avoid all these re-absorptive and depressive processes and instead diminish the formation of poisons through the use of natural and simple foods and, in addition, eliminate very thoroughly all the poisons that are formed by the body cells.

We also begin to know why it was that our ancestors, who surely lived the simple life, especially in so far as food intake was concerned, did not live to the age that we are led to expect ought to be the case from such simple, natural living. They lived in wool, day and night, often many layers of it; and almost never bathed in either sunlight, air or water. The surfaces of their bodies were regular cesspools of filth and poisons continually re-excreted and re-absorbed; and, in the end, despite their simplicity of living habits, their naturally robust physiques were overcome so that few lived to the century mark and over, which ought to have been a common achievement.

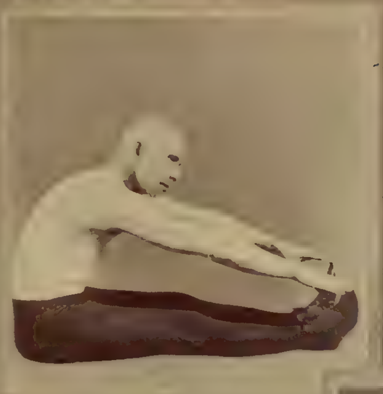
But to return to the matter of method. Even in summer, the beginner will probably wish to wear underclothes, so let it be the least covering and least insulating obtainable, which means the most porous and most abbreviated, and then when winter comes do not change it for any other kind. I shall waste no space discussing how to begin skin training in summer. I shall only say, wear as little clothing as the law allows; open, porous, loose-fitting and preferably light in color, in order to get as much light and air in contact with the skin as possible. Often go bathing and expose the body to the sun, air and water upon the sandy beach or river or creek bank. On the days when beach bathing is not possible, expose the nude body at an open window and take a cold or a cool bath, even if only a cool sponge. Then pommel the muscles with the closed fists, but the skin friction may be dispensed with in summer, if the sweat makes it impracticable. Then, as the cooler autumn weather approaches, keep up the morning exercises in the nude, with the windows open, and the cool or cold baths followed by pommeling of the body and frictioning of the skin; and as the weather grows colder the nude body will thrill to the cold contacts at the open window, and in the bath, and the window will not be closed.

But if it happens to be winter when one begins, then one must have a care to make haste slowly, especially if one has coddled the skin to a great extent. If one is wearing heavy non-porous clothes, one must keep on wearing heavy underwear until the weather moderates in spring (in northern climates); but, when possible, it will be better to exchange the impervious for porous wear of approximately the same weight, or wear two suits of thin and porous underclothes. Simultaneously the skin should be exposed every day in a well-ventilated room that is heated, as near to the open window as can be enjoyed, gradually accustoming the body to draw closer and closer to the open window, so as to directly contact the light and the moving air coming in at the open casement. At first this exposure may be for only a half minute, at the same time keeping up a vigorous frictioning of the skin. Each morning the exposure may be a little longer, until one may take as much exposure as is enjoyable, or as time permits.

If one uses bed exercises, as I do, the room may, in the early training, be warmed and the window opened; or the window, having been opened all night, may at first be closed and the exercises taken in the unheated room, making them vigorous enough to keep up a brisk circulation. Then, when the exercises are finished, the window may be opened and the nude body exposed for a few seconds to the light and the moving air while the blood is still surging through the arteries as a result of the exercising, making it almost impossible to take cold from a short exposure; but, to make doubly sure, the skin may be briskly frictioned while exposing it, using the palms for the purpose. Of course, if one's vitality is very low, as in cases of invalids or convalescents or near-invalids, the room must be warmed in the early treatments, if in winter; but it must also be well ventilated, and at first only the milder days chosen for exposures. The same care will have to be exercised in carrying out the bathroom exposures. But for others than the ones just mentioned, after the bedroom exposure, retire to the bathroom and, as long as possible remain nude while making the toilet, at first opening the window only after the bath has been taken, which must be at least cool to have any very helpful reaction. But it may be only a cool sponge, the coolness being at least as cool as the temperature of the room when the window is opened. This may easily be arranged by sponging the skin over first with lukewarm water, then with cooler water and then still cooler. By this process the most sensitive skin can learn to tolerate and enjoy the coldest sponge, but it may be necessary to get up a vigorous circulation and deep breathing by brisk exercise just before beginning the sponging. This can always be done by reserving the stretching exercises, outlined in chapter thirty-eight, to be taken just before the bath, and if this is not enough to set the blood coursing, take the squatting exercises also at that time. Later the window should be opened while the bath is in process and still later so soon as the bathroom is entered, except when the weather is extremely cold. It does not take long to thus train the skin to that point where all but the very coldest contacts are enjoyable. And, if good sense is used in graduating the exposures each day, there is not the slightest danger of catching cold; but the opposite is true and the training, properly taken, makes catching cold more or less impossible.

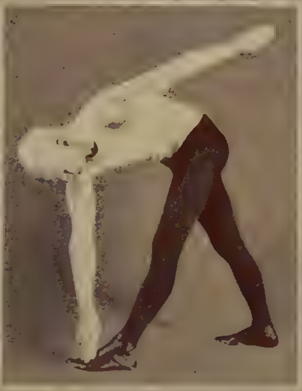
The primitive man whose naked, or nearly naked, body contacts the wind, fog, rain, dew, etc., out of doors does not catch cold, and the chief reason is that his environmental Defensive Mechanism is kept normal by defending his body against these various exposures and contacts, and his skin elimination is perfect. These light, air and cool or cold water baths, with the environmental changes they stimulate, do the same thing for the civilized man's environmental Defensive Mechanism, thus maintaining it at its normal functioning power by compelling it to frequently and regularly fully function. By these simple means do we compensate our failure to live out of doors and unclothed, as nature intended.

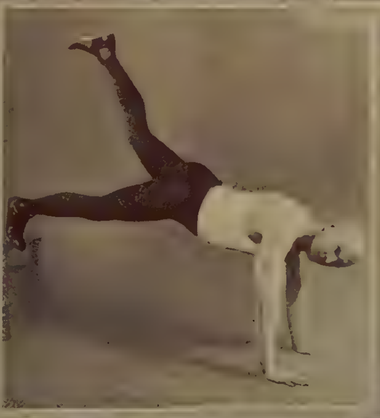
After the bath the body ought to be well pommeled by the closed fists and then briskly frictioned by the palms, to fully restore surface circulation and reaction, then quickly dressed.



CAN'T be done with a "big tummy". Natural foods develop muscle, brain and nerve, but only normal fat.

SIMPLE? Don't be too sure. Try it first, keeping the knees absolutely unbent No old man's stunt, you'll find.





ASK YOUR 75-year-old friend to do this, and if he cannot, ask him what he eats.

Needless to say, all this is the very antithesis of the ease and comfort idea upon which civilized living habits are based.

But I have pointed out in an earlier chapter that civilization is entirely wrong in making ease and comfort and luxury the chief objectives of material life, and that effort is the law of growth and development and perfection; and that degeneration and decay are the penalties of breaking that law.

But is the reward worth the effort? That depends upon the intelligence of the individual concerned: rather upon the character of that intelligence.

There are two kinds of natures, one represented by the snake that has just swallowed a toad and coiled itself up in the sun to snooze and digest it—ease and comfort type. The other is represented by the rubber-footed, bouncing deer and the curveting, prancing, lithe-limbed and tireless racehorse. As a matter of fact, the snake represents the natures of the great mass of civilized peoples and only here and there is an individual who has the quality of intelligence to prefer the vitality, the life and buoyancy of the racehorse to the torpor and stupid comfort of the snake, especially if the vitality, the buoyancy and spirit of the racehorse have to be earned by effort instead of bought with gold.

It is for the intelligent, vital, buoyant, high-spirited type, and those possessed of enough intelligence to sufficiently desire to be buoyant and high-spirited that they are *willing to work* to achieve that end, that this book has been written. For the "snake-full-of-toad" type it can have no possible interest, nor have I any interest in that type. I leave them to their fleshpots and the torpid joys they get out of their torpid ease and its consequent diseases.

To the other type I offer a plan of physical redemption, or salvation, that will, if they are sufficiently faithful to it, elevate them to the same vital plane upon which I have dwelt for a good many years, and upon which, barring accident, I shall dwell for yet a good many years. To those who will make the effort, I promise within a short time a sufficient mental or emotional and physical thrill to induce them to greater effort, resulting in greater thrill, inducing a greater effort resulting in a still greater thrill, inducing a still greater effort resulting in a still greater thrill, inducing a still greater effort resulting in an exaltation of body, mind and spirit that no longer recognizes the means of its attainment as effort, but as the beckoning portals to mental and spiritual exaltation—attained by the route of God-designed physical perfection.

Mere rhetorical verbiage? Well consider, before deciding, that I in my seventy-sixth year am able to work from eighty to ninety hours a week and practically every day in the year, including all holidays and Sundays—giving only the evenings of even Christmas and New Year days to social engagements, with two or three summer evenings each week to witness the girl athletes play ball, and an occasional Sunday evening; for even on my Sunday rambles I carry my writing along with me; and that in addition I walk 250 miles a month and practically never, never tire. Consider that on the coldest winter mornings in our Canadian winter, two hours before daylight, I have not the least hesitancy in throwing back the bed coverings from my nude body in a room that has been without heat and open to the outdoors all night, and, lying on my bed nude, take the exercises described in chapter thirty-eight. Consider that I can retire to the bathroom and perform my ablutions, shave, bathe and exercise as I have described, in a cold room. Consider that I can then, after dressing without heavy clothes and no underclothes, in a cold room, feel so buoyant when I reach the street that I almost invariably yield to the impulse to run, although it may yet lack over an hour to daylight, and I will not stop running inside of three to thirty blocks, and sometimes run far greater distances; recently I ran a distance of five miles in forty-seven minutes, although I had been only five hours in bed following a late lecture I had given the night before, with many questions following the lecture. Consider that I walk (and run) between four and five miles to my office and could just as well walk ten or twelve, for when I arrive almost the first thing I do is to grasp a door by its free edge and vigorously swing it one hundred or more times, as described in chapter thirty-eight. Consider that all day long I am so vital that I repeat the above door-swinging exercise several times, or jump over chairs, or see how high I can kick, or do the "frog dance"—a stunt which few thirty-year-olds can do—or take a turn at stationary running or leg balancing, or jump into the air and click my heels together twice before I light again, or push against the wall, or drop down and do the push-up exercise. Consider that I feel like humming constantly, and do, and that at night when I am alone, after the day's work beginning before 8 a.m., often before 7 a.m., and following the early morning's exercises, bathing and the long walk, I shut myself in the large vault and roar and sing (?) to my heart's content, then work until nine or ten p.m. and walk home between four and five miles—walk all that distance that I do not run. In winter I always run the first three blocks and take one or more similar runs before I reach my home. Consider that, even then, I am not tired. Consider that in my seventy-sixth year I am enjoying the clearest mentality that I have ever possessed, that I never have a moment's illness; even colds, once my *bete noire,* keeping their distance during the past twenty years. Consider that I have no fear of illness and know that I shall not—cannot, in fact—be ill for years to come, and that I can and do plan for years of activity in both the mental and physical fields in an endeavor to catch up with the useful things I might have done (therefore ought to have done), in the world had I known enough to keep myself well in those years which we are accustomed to refer to as youth and middle age, but which all ought to be known as the years of youth, and will be so known some day. Consider that I have all the fire and zest of youth with the experience of many years to guide it, and the added knowledge of how to guard myself against sickness and disease through the means appointed by nature or God toward that end for all men. Consider all these results and who longer would ask is the reward worth the effort? And who then would characterize my exultant description of the mental and spiritual reward through the achievement of physical perfection as mere rhetorical verbiage?

And solemnly I declare that the same reward that is mine, and that is yet in even greater measure to be mine, may also be possessed by any one not yet afflicted with malignant disease (as cancer) or in whose body tissue destruction has not already gone so far that the body is not worth rescuing.

But keep in mind that in that body must reside sufficient intelligence to see that God, being perfect, as He is, could not have intended an imperfect or a diseased human body, therefore He must have provided a way of living that will ensure the building and maintaining of perfect human bodies that are positively immune from disease.

For one lacking this intelligent view of God and His creation I have no message at all. He must remain, so far as I can see, on the disappointing and continually disillusioning plane of disease and drugs, early aging, uncalled-for senility and premature death. Yes, senility is all uncalled for, regardless of the years the body has lived. Senility is but the brand of the civilized devil of ease and comfort and luxury, out of which flimsy substances civilized peoples have made a god, the worship of which has won them no greater reward than this misery, infirmity and decrepitude of the—often (in years)—not very old.

No, God intended us all to live long in the land which He has given to us—to an age far, far beyond that which we wrongly regard as old, and remain warm, bright and buoyant-natured to the end, and then in the soft and silent hours of some early morning watch to gently close our eyes and pass out and pass on into that more buoyant life in which the encumbering flesh shall no longer have any part.

CHAPTER FORTY

APPETITE CONTROL OR FASTING.

In chapter twenty-eight I referred to fasting. To most civilized persons the thought of going without food is painful, even to the missing of a single meal. And, paradoxical though it is, this statement holds generally true of even those persons from whom nature has, because of transgressions, taken away desire and to whom the thought of food is disagreeable; so ingrained has become the habit of taking food by the clock and the habit of mind that has grown out of that practice among civilized peoples.

Now, I have no quarrel at all with the practice of taking food at regular intervals. That I look upon as a most desirable habit to form, provided one meal has been entirely disposed of before another follows it, and provided that food is never taken to repletion at any one meal. Regularity of feeding time follows the general rhythmic trend of the cosmos, at least of the terrestrial part of it to which we are attached. But in all those automatic rhythms which we view in the external nature about us we see no such thing as repletion or excess. When we do see what to us may seem like an excess of some one of nature's manifestations, as an excess of drouth or moisture, the balance is sure to be redressed by an equal prolongation of the opposite manifestation.

In the natural human being the taking of too much food might be likened to the prolonged hot or cold spell, or wet or dry spell, in external nature, which is always balanced by the prolonged opposite phenomenon. But in the civilized human being the phenomenon of food repletion is constant —speaking generally.

Primitive man and the lower animals may eat to repletion, and they often do, but then they do not eat to repletion again and then again and again, day after day, year after year. They do not again seek food until hunger drives them to it, and, as I have already pointed out, their meals are apt to be *mono* meals, consisting of some one kind of food, which throws less strain upon the digestive capacity, and thus less burden of accumulated detritus upon the cells of the body as a whole. It is primitive habit not to seek food until it is called for by hunger originating in the body's cells for materials needed by them that are not present in their storage warehouse, the blood. There is thus always, with the unsophisticated tribes of mankind and the lower animals, only a temporary repletion followed by what civilized men would regard as a temporary fast, which completely recuperates the organs of nutrition from any temporary strain put upon them by their temporary repletion. Such strains are thus prevented from becoming *cumulative.* The physiological balance is thus maintained automatically.

But automatism has disappeared from civilized man's methods of feeding and been replaced by a diabolically-conceived plan. The basic element in that plan seems to be to eat as much as you can of as many kinds of food at one time as you can as often as you can. We retain the savage's joy in the feast, but we have dropped his habit of sleeping and dreaming it off until compelled by hunger's urge to go out into nature—not the ready-to-hand market—and seek more food, and go in that hungry state and seek until he finds food, a situation well calculated to make him satisfied with one simple kind of food for which his body has been thoroughly prepared through his more or less prolonged fast and his physical exertion in procuring food while in that fasting state. The feast thus does the savage little harm, but the continual feasts, often repeated three and four times a day, which civilized people think they enjoy, permit of no such rest to the organs of digestion nor to the circulatory organs which act as the common carriers of the body (for the blood is really an organ), nor to the organs of elimination, nor to the individual little lives composing the body, which we call cells.

This continual feasting of civilized people permits the body no time to clean house. The food repletion of the savage doubtless loads his blood stream with all kinds of food debris but his succeeding abstinence allows the cells time to dispose of it before a second and a third and a fifth and fiftieth load of such debris are added to their burden.

Doubtless, in the case of the savage, this excess of food debris is carried in solution in the circulating blood, when the blood can keep it in solution, but, doubtless, too, it is often so largely present that the blood cannot hold it in solution and it is dropped by the wayside, cluttering up the tissue cells and interfering with their work or functions. But the succeeding abstinence, as just pointed out, brings relief to his burdened cells since the physical effort of securing his next meal while hungry burns up the deposited debris and eliminates it and there is never any cumulative effect.

With the civilized man, eating to repletion three times a day, the blood must be more or less continually loaded with food debris. This arises not alone from his feeding to repletion, but from his habit of feeding upon many kinds of foods at one meal with little regard as to their compatibility or suitability to being eaten together.

Digestion, even a complex chemical process when only one type of food has been eaten, becomes a more complex, an exceedingly complex, process when many kinds of foods, sometimes all of them denatured, are eaten to repletion. And the result cannot be otherwise than a loading of the blood with poisonous food debris. This food debris cannot well help being deposited in the body tissues here and there, if not everywhere, among the cells, for the simple reason that it is so in excess that the blood cannot maintain it in solution and keep it circulating. Now this would not much harm the civilized body if there followed the food abstention practised by the savage after his feast. But the civilized man knows no such abstention. With the regularity of the clock, his feasts succeed each other three times a day—often more. Thus is repletion piled upon repletion. And each repletion of the digestive tract with many kinds of foods, mostly incompatible foods, adds its quota of food debris to the blood stream, and, presumably, to the debris deposited in the cellular interspaces; so that the loading process becomes cumulative until the body has all it can sustain or stand up under of such debris. But the feasting continues, even when nature tries to stem the flood about to break loose by taking away the appetite. Kind, or kind-intentioned, friends, and often doctors and nurses, conspire by special preparation of tempting foods, by artificial appetite stimulants, etc., to tempt the jaded, nature-killed, appetite, because we always must "eat to keep up our strength."

It is by such *un*-natural practices that many colds and acute diseases, as well as most chronic diseases are produced. The frequency of colds, catarrhs, bronchial affections, etc., in civilized life, are, doubtless, reactions by which nature tries to rid the body of accumulated debris *via* the mucous membranes and thus restore equilibrium. These named conditions thus become really symptoms and not diseases in themselves, the real disease being the internal condition that is their cause.

Now there are two ways in which civilized people can meet this situation. One is by consistently refusing to eat to repletion. The other is to frequently undertake a complete or partial fast, depending upon the extent to which food repletion is carried on.

I need not dwell upon food repletion since this simply means eating to the full capacity of the stomach. In most civilized persons, repletion comes long before the stomach is completely filled, for the stomach in most civilized persons is dilated from persistent overloading. Thus the average civilized person, to avoid repletion, would require to stop eating before the stomach gave any indication of becoming filled. Since few persons can be induced to do so then the other procedure must be followed by those who would be—not just well—immune from disease. They must fast.

Fasting is a most wonderful process of rejuvenation. Aging is the result of accumulation of poisons in the body. Disease is, in my view, due to the same cause, primarily, at least. The body that has no struggle with fatigue poisons, or tissue and food debris, because the eliminative processes have been kept normal by natural means and have not been imposed upon by unnatural living habits, will find every cell and organ functioning normally. When this is the case, the body must be absolutely perfect, and a perfect body must be free from disease. Such a body can laugh at microbes.

It is a well-known fact that, although the poorly-fed body is apt to "catch cold" and suffer from various catarrhal and inflammatory affections of the respiratory tract mucous membranes, a fasting person never "catches" cold. On the other hand, colds and catarrhal and inflammatory affections rapidly clear up during a fast. There must be some physiological explanation for these facts. And that explanation is not far to seek nor hard to find.

I have stated that colds, etc., are, primarily, a reaction by which the body seeks to rid its debris-burdened cells of their encumbering substances *via* the mucous membranes. I stated that this debris is always deposited in the tissues because it is so in excess in the blood stream that it cannot be all carried in solution or suspension. Now, so long as the body is obtaining food, regardless of how poor it may be, the blood is maintaining its normal specific gravity and density and it will not reabsorb any of the substances formerly dropped by the wayside in the tissues and body cells. Moreover, poor food means unbalanced food and unbalanced food will add food-debris to the tissue cells, thus favoring the occurrence of colds to get rid of this debris. But when the body completely fasts and water is freely taken, the blood soon becomes "hydremic" or watery and its specific gravity or weight and its density fall below normal. In this artificially-induced hydremic state the blood clutches at everything within reach to restore normal specific gravity and density and the only materials available are those foreign substances formerly dropped by the wayside among the tissue cells, and these substances are redissolved and taken back into the blood and there burned up or oxidized and eliminated, generally as water and gas, by the skin and mucous membranes. Thus the body "cleans house" during a fast. So true is this that frequently great quantities of mucus will be eliminated by the respiratory mucosa during a fast, but the inflammatory symptoms of a "cold" are always absent; and frequently the fasting stomach has to be washed out by an emetic or the stomach tube, so vile are the substances excreted into this cavity. However, when these conditions are present is not the time to end a fast. They are too indicative of a systemic encumbrance that the body ought to be rid of, must be rid of, if it is to become well and immune from disease. And the one sure way to rid the body of it is to continue the fast until these discharges subside.

Fasting is nature's way of restoring equilibrium. All animals, save man, fast when they are sick, a great lesson from nature's great book; the greatest proof we have that fasting is nature's way. During a fast we find that after the third day we no longer suffer from hunger, unless we carry a particularly heavy load of food and tissue debris of which we must rid the body cells.

There are two causes of the empty, "all-gone" feeling during the early part of a fast: the habit contractions of the stomach at regular feeding times and the outpouring of irritating tissue excretions into the stomach cavity. Both will subside in time and leave the body rejuvenated because of the tissue-cleansing processes.

When I fast I start it in the morning and take two glasses of water each hour until 6 p.m. (as outlined in chapter twenty-eight), and I continue it until my tongue is clean, then break the fast as outlined in that same chapter.

I have just said, when I take a fast, but I should have said when I used to take a fast, for I now never have to fast, because I never eat to repletion and thus never need the tissue-cleansing which fasting is intended to bring about, nor the rest to the digestive organs for which the fast is also taken. I do frequently resort to an entire day upon fruit, or fruit and half-and-half*. I invariably resort to this, in fact, if I find my bowel excreta the least bit foul odored, at the same time taking one or more enemas. I do so because I know that I cannot feel a bit off color or have malodorous stools unless I have erred in eating or am not eliminating as much tissue waste as I am making. I know that fruits and milk both antagonize the putrefactive micro-organisms of the colon by killing off those bacteria which cause putrefaction, and they are also, especially the acid fruits, the best tissue alkalinizers and systemic cleansers known.

By eating simple meals of simple natural foods and adopting this simple plan of eliminating troublesome accumulations as the first unmistakable warning is sent out over the reflex nerves, through which I am made conscious that I am disturbed in some way, I avoid all forms of sickness, even colds and depressions of every kind, and live absolutely tremorless in my muscles and nerves, "in the pink" of physical fitness always. Complete fasting is surely an effective way of securing health lost through the abuse of food, and fruit fasting is surely an effective way to maintain health when once it has been attained through the proper use of food.

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* Half milk and half boiling water.

CHAPTER FORTY-ONE

PRACTICAL SUGGESTIONS CONCERNING TENSION.

Perhaps the greatest source of wasted human energy is that wasted in unconsciously-expended nerve and muscle efforts through involuntary tension, the inability of the owner of the muscles to let them go, to become devoid of all tension, effort or sense of contraction; to be, in short, always relaxed, except when contraction is directed by the will, and for some definite purpose. I have shown elsewhere how important the muscle Primary Reflex Generating Centre is, with its great chain of initiated, directed, or controlled reflex functions, therefore, how vastly important it is that all the voluntary muscles of the body be developed symmetrically by exercise or systematized training. But no muscles are ever completely developed until they are brought under the control of the will, the complete domination by the intelligence.

Nerve and muscle tension are among the curses of civilization. The savage does not know tension and neither do the simpler races, several degrees above the savage level of development; and little children do not know it until after they develop consciousness of their individuality, which is at an early period among civilized peoples. But what is tension? It is a hard thing to describe, but I shall try to make it clear.

As you sit upon your chair you find your hands, arms or legs tightened up, as if holding you together. It may be your jaws are clamped together or your neck muscles are set as if trying to hold your head on, or it may be all of these tensions are present and, in addition, the chest muscles may be set so that deep breathing is practically impossible. When you lie on your bed or "relax" on a couch your head is either pressed into the pillow or prevented from fully settling down onto the pillow by contraction of your neck muscles. There is also tension in your legs and arms.

People even become so habituated to this tension that they sleep with the muscles taut and tense, and often when they drop off to sleep and the tension gives way they are wakened with a jerk and a start which may be even alarming.

When travelling on train, street car, steamboat or motor car you do not relax and sway with every motion of the conveyance, but jerk and snap about, resisting every jolt it makes. In a hundred other ways that you are all unconscious of, you manifest muscle and nerve tension and thus waste muscle and nervous energy; and you never will be conscious of this loss until you study yourself. When you proceed to perform some voluntary effort of the muscles, and perhaps it is only necessary to move an arm or a hand to accomplish your intent, you probably tense the muscles of the neck, face, possibly the chest and abdominal muscles; and you move the arm or hand with a snap and jerk with no precision of movement or direction, instead of with deliberation and absolute precision of movement without a trace of fumbling or tremor in the member involved.

These are all habits of civilization, and if you live in civilization and are born of parents civilized for a few generations, and you have not consciously trained yourself out of these habits, you are afflicted with some of them—rather with most of these manifestations of the one bad habit, that of musculo-nervous tension.

And rest assured there is no chance to develop a natural immunity from disease until you have consciously trained yourself out of them—trained yourself to let the chair support you without you holding it down or holding yourself down upon it, to let your body relax as a bag of flour might upon the bed or couch, so relaxed that if a friend picked up an arm or a leg it would dangle at the joints as a flail or as two sticks joined together by a string; so untensed that if your head were raised up by a hand and the hand withdrawn suddenly it would drop as if unattached to your body and not stick up in the air and settle slowly back, controlled by the rigid muscles of the neck. There is no chance for you to develop immunity from disease until you so control the voluntary muscles that every muscular effort is deliberate enough that the movements are gliding, rather than jerky, however rapidly they may be made, and so that power or contraction or tension is used only in the muscles involved in the voluntary act.

All this means, of course, controlling first of all the mind and nerves. Controlling the mind and nerves, and through them the muscles and muscular movements of the body, will mean the saving to the body for constructive purposes within the body more energy than is used in the hardest kind of a day's work. And it can be done, for I have done it.

I wish every reader, especially those who are thin and "nervous," irritable, pessimistic, foreboding or fearful, would buy or borrow a copy of Annie Payson Call's book, "Power Through Repose," and learn how to gain command of the wonderful machine, their own human body, of which they have to be the engineer. I can only point out how absolutely important this control is. Manifestly I cannot say in one short chapter much about what this most interesting writer takes a considerable book to make clear. However, I shall offer a few suggestions for those who may not be willing or able to procure this great book.

I have already stressed the need of realizing how far the body is from having the ability to habitually let go of the muscles and nerves, when not in demand for actual work. But I repeat that injunction, because it is so vitally important. Study the cat, dog, or the sleeping infant and note the absolute surrender of every part to be supported by the floor or the couch or bed upon which the body reclines, and note how far you are from that complete surrender and absence of muscle tension.

Having become consciously aware of the muscle and nerve tension in your own body, lie flat upon the back on the floor, in preference to a yielding bed or couch, and study how to give your entire weight to be supported by the floor. Give way to it as if you were a mere bag of bones and had no volition in the muscles to prevent the bones settling down and being heavy. Imagine your limbs to be powerless to move or prevent themselves from settling down heavy and useless. Imagine your head as far beyond your control of it as if it were separated from your body at the neck. Imagine your neck muscles have disappeared. Each time you try this relaxation exercise you will become more aware of tensions that you cannot at first control. While you are struggling with arms or neck you will suddenly become aware that your legs are tensed, or it may be the abdominal or chest muscles, but continuous practice and a serious purpose will bring results.

Have some one, while you are reclining upon a bed or couch, lift an arm or a leg or your head, while you try to take all control out of the lifted part. If you succeed in doing this the arm or leg will be limp at the joints, the head at the neck joints. If the elevating hand is placed beneath the neck low down and effort made to raise the head, the head will drag back as the lifting proceeds, as would a dead person's head or the head of one in a faint. And if the elevating hand be suddenly withdrawn the elevated member will suddenly drop to the couch with a flop as if you were in a faint.

In walking, let the arms dangle and swing from the shoulders—let them swing but do not make them swing—just as if they were heavy appurtenances hung to the body at the shoulders by a thread and you can neither resist nor swing them. Do not jerk the legs along kicking out in front with a snap, but try to imagine the body continually falling forward and the legs simply swinging rhythmically forward in front of the body to prevent it falling.

Never sit on the front edge of a chair, but sit full upon the seat. Never push back against the chair back with the hands clenched and the neck and leg muscles taut, but settle restfully against the back and let it support you, letting all the muscles go.

When ready to retire for the night, take the stretching exercises outlined in movements numbered 14, 15, standing group, in chapter thirty-eight, then retire and relax the body, taking every bit of tension out of every nerve and muscle. Imagine the head heavy and let the pillow support it, then imagine the arms heavy and let the bed support them, then imagine the entire body paralyzed while you try to let all effort slip away from the muscles, and at the same time relax the mind; try to think you are unable to think. By these exercises you will soon train the entire body to relax even in sleep.

By removing all unnecessary tension from nerves and muscles during the day, controlling all muscular activity to the point of confining it to deliberate movements of the necessary muscles only, and teaching the body to relax during sleep, you will have put the body for the first time since its early years of childhood in a position to fully benefit from the muscle chain of reflex functions. For it is true that if the nerves are not controlled, the more the muscles are developed by exercises the worse for the body, since it becomes like a mighty engine, the mechanical governors of which are out of repair. Such an engine will wreck itself; and the more powerful the quicker the wreck is accomplished and the more complete.

But I would impress upon every reader that to control the nerves by the sheer use of the will is not the place to begin. Begin by training up the skin, muscle, sleep and food reflex chains by allowing them to regularly contact their natural stimuli, as outlined in the appropriate parts of this book, and, coincidentally, teach the nerves control through the exercise of the mind and will and the training exercises just outlined. By properly developing and coordinating all the five chains it will be found a simple thing to teach the nerves and muscles to behave as God intended them to behave, and at the same time you will have developed a complete, God-intended immunity from disease.

Moreover, your body shall have become what it was designed to be, a palace of Spirit, a temple of Soul, a habitation fit for the indwelling of so much of the Infinite Life as constitutes the Real within you.

CHAPTER FORTY-TWO

THE REDUCING REGIMEN.

The first and most important thing a fat person must accomplish, if he is bent upon reducing, is to make up his mind that fat, beyond what is needed for a certain rounding out of the bodily contour, is more than an encumbrance, it is a menace—not only to health but to life.

The reason that this first step must be taken is that the next step will be more likely to be taken with decision enough to go through with the reducing program.

A gross accumulation of fatty tissue is no joke, in spite of the fact that many fat persons take it as such. This does not mean that every fat person is going to suddenly die; but it does mean that every grossly-fat person is going to die many years earlier than there is any need for, and he is not going to enjoy the years he does live, nor be as fully alive to his financial, mental and spiritual interests as he would be without his encumbering fat. All of which is just as true of her.

What I have said does not apply to those persons merely hereditarily rotund, with the body fat evenly distributed all over the body, but to those who accumulate fat as they advance in years, especially during and after middle life.

There is one lesson, if no other, that I desire to drive home in this book, and that is that the mental, moral and spiritual states are largely controlled by the physical state. To be and remain upon an elevated mental, moral and spiritual plane, and yet be in a depressed, physical state requires constant effort; a struggle that is liable to depress the physical state still more, for all struggle costs energy. On the other hand, to the physically perfect individual, mental, moral and spiritual attainment is automatic. The physical bankrupt finds it easier to descend mentally, morally and spiritually—it is a struggle not to do so—while the physically perfect person has a fight on his hands to make himself do wrong.

And how could it be otherwise?—for if a person is physically perfect, that state has been attained through discipline, by adopting "ought" instead of "desire" as the body's watchword, which means the development of good habits of body, mind and morals. And good habits have just as strong a hold upon the body as bad habits. They are at first hard to break away from, just as bad ones are.

It goes without saying that the converse of all this is also true. Slipshod and careless feeding and other living habits—doing as we choose, or desire—instead of as we ought, surely develops a bad mental and moral tendency, because it substitutes Desire for Duty, or discipline.

All this is entirely aside from the esthetic side of life. It is a thrilling experience to be the possessor of a perfect body; to contemplate that body's perfections, study its contours in the mirror, contrast and compare it with other bodies not so well disciplined. But what can be the thrill to the possessor of an obese body in contemplating the unlovely rolls and hummocks of fat? This is particularly true of woman. The most lovely form that God has made is, without doubt, the female human form, at its best. But, as in everything else, this loveliness implies the possibility of becoming one of the most unlovely of all forms. Those beautiful curves and contours obliterated and, instead, ridge and roll and hump of fat, naturally accentuated about the hips and breasts, make the fat woman a "sight" to behold, but not a sight to thrill over. If I were a fat woman, I would be willing to live upon one small meal a day—yes, one meal a week—and walk upon all fours, rather than remain such a "sight." Of course, I would not imply that such a drastic plan is ever necessary, for it is not.

There are different kinds of fat people, for instance the excessively-fat adolescent whose fat is a real disease known to the medical profession as "endocrine disease"; a disease due to deficiency of secretion in some of the endocrine or ductless glands. Then there are the internally fat and the externally fat types, and the pallid or anemic type. With the internally fat, the fatty accumulation is within the abdominal and thoracic or belly and chest cavities, and those so suffering also are sufferers from shortness of breath, because of the great accumulation of fat about the heart, and infiltrated within the heart muscle fibres; much the most serious form of fatty accumulation.

To determine whether the fatty accumulation is internal or external, lie on the back and grasp the fatty tissues of the lower abdomen in the hands, at the same time raising both legs to the upright or perpendicular position, or hold the legs down and raise the body to a sitting posture. If the fat is internal the flesh will be plucked from the grasping hands and the tensed muscles will be felt beneath the hands. If it is external fat, there will be no difficulty in retaining hold of a considerable roll of fat and the sensation beneath the hands will be doughy, instead of tense and muscular.

The reason for making this determination is an important one, for if the fat is external then the afflicted one may and ought to take vigorous physical exercise, in conjunction with a restricted diet; but if internal, exercise of a vigorous type must not be indulged in, at least until the fat has been considerably, but not too rapidly, reduced and there is evident great improvement in the breathing. Then it would always be safer to have a heart examination by a competent physician before risking vigorous exercise. But gentle exercise is important in this type, as walking, and must be taken; and when it can be safely undertaken, it ought to be vigorous, for it is an additional guarantee that the fat will not again accumulate and that the heart muscle will gradually return to normal.

In endocrine cases, due to disturbance of the internal secretions, the treatment is different from that of the other forms, for in these cases the fat accumulation is not so much a result of a too great intake of food energy as of a lessened combustion of it by the vital processes. Here the treatment properly consists in supplying the body with the deficient thyroid or other internal secretion. But I have known many cases of this type respond to a more or less prolonged fast, the fast apparently clearing up some systemic cause that had operated to check the internal secretion. A case of this kind, however, must be intelligently supervised to avoid doing harm. When not so supervised by a physician experienced in the fasting treatment, the intermittent fast is the safer way; that is three or four days on greens and fruit with half-and-half,* then one or two days on orange juice and water; then again several days on greens, fruit and half-and-half, then orange juice and water; and during this intermittent fasting walking must be undertaken in a systematic way, starting with half a mile to a mile a day and increasing a hundred yards or more every second or third day until walking at least three miles daily, better five to ten miles daily.

But for the internal and external forms of uncomplicated obesity there is only one effective treatment, that is to lessen the intake of food-fuel and to increase the output of energy, being careful not to increase the energy output in the internal cases too rapidly; nor at all extensively until the heart action approaches normal, as shown by improvement in the breathing, or by the stethoscopic examination.

For the pallid type, out-of-door life—walking; swimming in the out of doors; sun baths in the nude; out-of-doors running or rope skipping to compel deep breathing and increased oxidation or burning up of the accumulated energy reserve of fat; and a diet of iron-containing foods,—Roman Meal†; egg yolks (four or more a day); spinach and other deep-green foods, raw or not overcooked to preserve the food iron—should all be pushed. It is, of course, always necessary to take some energy foods and some proteid foods, but these must be kept to a minimum or the fat will remain.

Protein for all types is supplied by one egg a day or three ounces of lean meat, or six to eight nut meats, or two glasses of skimmed milk or buttermilk, or three-fourths of a cupful of cottage cheese. The energy needed can well be supplied by one cupful of Roman Meal porridge, eaten with plain dairy milk, or made to look and "feel" creamy by adding to it a certain quantity of evaporated milk undiluted. The rest of the foods of the obese person ought to be made up entirely of salads, lightly-steamed vegetables served only with a very, very little salt or lemon juice or dressed with stewed tomatoes, fresh or canned; or of acid and subacid fruits. The fruits ought always to be eaten uncooked, and the bulk of the vegetables should also be uncooked.

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*Half milk and half boiling water.

†Again, let me remind the reader that Roman Meal, wherever referred to in this chapter, means Dr. Jackson Meal in the United States (see footnote, page 327).

The best dressing for any raw or cooked vegetables, for the fat person, is cold stewed tomatoes (or canned), since these are vegetable themselves with a thinning tendency. It enables the eater to avoid salt, a great advantage to the fat person, since salt adds greatly to weight by retaining water in the tissues. Oil dressings should, of course, be avoided, as they are fattening.

But this diet I have outlined is to be the more or less permanent diet of the obese person; that is, the foods must always be composed of the bulky, less concentrated foods, vegetables and fruits, to a very great extent, for it is quite important that the obese person eats enough food to cause the digestive tract to function normally; that is, he must eat enough food to reasonably fill the stomach two or three times a day, yet these foods must not be energy foods. If he ever changes to the habit of filling the stomach with the concentrated foods even twice a day he is again in for the fat man's class. The vegetables and fruits are a boon to the obese since they allow them to eat to satisfy themselves, that is to a comfortable fullness, and yet not run much risk of becoming fat, for such foods are very poor fuel foods. Of course, as the fat goes down, a certain liberty may be exercised in increasing the amount of proteid food, and an extra egg; or an ounce of meat—if meat is desired; —or an ounce of cheese; or six to eight pecan or walnut meats, may be added two or three times a week; and two or three times a week two or three Roman Meal muffins, or Roman Meal johnny-cake, or even whole-wheat bread, being careful not to overdo the buttering of these foods.

So much for the permanent diet. But the diet for the first two or maybe three weeks ought to be acid fruits and salads consisting of leafy vegetables, tomatoes, very young green peas and string beans, sauerkraut, radishes, onions, raw or steamed cucumbers, etc., dressed with the juice of the sauerkraut or stewed fresh or canned tomatoes.

For the first day no food at all ought to be eaten, but one or more glasses of water (hot, warm or cold), ought to be taken every hour up until 6 p.m. The second day the same except that the juice of one orange may be added to a glass of water every hour, and as much more water as desired may be also taken, but only the juice of one orange each hour. The third day a full glass of pure orange juice may be taken every two hours. The fourth day one large or two small oranges may be eaten every two hours, drinking water only for thirst. The next three days the diet is to consist of two apples or two oranges three times a day with a glass of half-and-half (half milk and half boiling water). This brings us to the end of the first week. For the next three or four days the same meals mornings and evenings, but the noon meal may be a salad of leafy vegetables, to which may be added radishes, or tomatoes or onions or cress, as piquant flavoring. The salad may be dressed with stewed tomatoes, canned or fresh. Or canned or fresh sauerkraut may form part of the salad and the juice poured over salad as a dressing. No other dressings are allowed, unless it be simple lemon juice. Salt must be avoided. For the balance of this week the morning and evening meals to be the same, but to the salad at noon meal add three or four tablespoonfuls of cottage cheese, or six or eight pecan or almond or filbert nut meats.

This brings us to the end of the second week. All this time walks ought to have been taken daily, starting with a mile the first day and increasing at least one hundred yards each day. In addition, bed exercises numbered 1, 2, 3, 4, 6, 8, 9; and standing exercises 1, 4, 8, 11, 12, 13, 14, 15 should also be taken, beginning with five repetitions of each movement the first day and increasing one each day up to limits placed on each (chapter thirty-eight).

Each day up to the end of the second week two two-quart enemas must be taken, preferably in the knee-chest position, using simply warm water—about 110 degrees F. In addition, a daily bath of some kind must be taken, preferably a cold shower when the skin reacts favorably to it, that is, soon becomes warm and tingling and there is no sense of after chilliness. But daily bathing is an essential part of the fat-reducing regimen, even if it is only a vigorous tepid sponge, although the colder the bath the more fat reducing; and after every bath the body should be pommeled by the closed fists, using the ulnar or soft side of the fists, the greatest attention being paid to the abdomen and waist and any other parts where fat accumulates. Then follow this pommeling with a brisk friction of the skin, using the palms and frictioning until the skin glows, and, if possible, until it sweats. It is a very great advantage if this pommeling and frictioning can be carried out before an open window, for it not only gives the skin the advantage of a light and air bath, but it is sure to cause deep breathing because of the vigor of the exercise, and the deep breathing of out-of-doors, oxygen-rich air will aid in oxidizing or burning up the fatty accumulations. And remember that the skin also breathes, which is one of the reasons for the daily bath. Fat accumulates only because the carbonaceous foods eaten are never sufficiently oxidized. Physical or muscular exercise aids in getting more oxygen into the body *via* the lungs; bathing, especially cold water bathing, sun bathing and cool air bathing, all aid in the fat-oxidizing process, hence the importance I am giving to these aids to reducing the unsightly and life-reducing accumulations of fat.

These daily baths ought to be kept up during life, but the daily enemas may be discontinued so soon as the two weeks' dieting just outlined are expired; but the habit should then be formed of going to the toilet immediately after each meal and trying without too much forcing to get the bowels to move. Keep this practice up for weeks, whether there is any result or not, and in the end will come the bowel evacuation following each meal; and the habit once established, if not discouraged, will remain with you throughout life, to your unending advantage.

For those who may desire a very rapid reduction, the orange juice fast may be kept up for two or even three weeks, then break the fast as indicated elsewhere in this book, but the enemas must be kept up, two a day, during the entire period of the fast, and also until the patient is back upon three meals a day, the permanent diet already outlined in this chapter.

We have arrived at the end of the first two weeks—but the same diet as used for the last half of the second week may be continued for a third week if desired—and we now wish to get back to full diet.

Daily meals can now well be planned as follows: a half cupful, or at most three-quarters of a cupful of Roman Meal porridge, eaten with milk to which is added enough evaporated milk to give it the color and consistence of thin cream. Positively add no sugar, but if sweet must be taken add a few raisins or chopped dates—note, I said "a few"—for the sugar in these is also fattening if used extensively. Try to get a long walk after this meal—which men and business women can easily arrange by walking to work, or part way to work. The housewife must use her ingenuity to find time and means of taking this exercise, if by no other means than by rope-skipping, or stationary running. The exercises numbered above are of the greatest importance to the stout and are best taken daily in the morning before dressing, just preceding the bath.

The noon meal ought to be salad or fruit only. The evening meal ought also to consist of a salad with one or two steamed leafy vegetables, spinach, cabbage, brussels sprouts, dandelion greens, kale, swiss chard, etc., and one egg, or an ounce of cheese, or a half to three-quarters cup cottage cheese, or six to eight nut meats; with an apple or orange as dessert, if desired. But plums, peaches, pears or any other acid or subacid fruit in season, except bananas, may also be used, even the berries, so long as eaten without sugar or cream. These green vegetables are to be especially pushed in the anemic or pallid type, and, if cooked, must be steamed for never more than fifteen minutes so as to preserve the food-iron as much as possible. The food-iron is contained in the green coloring matter of plants and is largely destroyed when cooked until the vegetables begin to turn pallid or change color.

I have spoken of the necessity of filling the stomach, but I must caution against filling the stomach until it is crammed, for such a stomach is overfilled. Judgment and sense of proportions must be exercised not to overdo the feeding even upon these non-fattening foods, for non-fattening holds true only within certain limitations. All eating between meals must be strictly avoided; and one of the great benefits of a fast is that it tends to destroy the tendency to eat between meals. In any case, persistence in refusing to yield to the munching desire kills it in a short while.

As already pointed out, a constant desire for food or an "all-gone" feeling in the stomach, or centering there, is an evidence of self-poisoning or over-stimulation by food, and nothing more. It always passes away, if given a chance by refusing to cater to it.

I wonder, now, if the reasons for bathing, exercising, walking, etc., are well enough understood. If not they will not be intelligently carried out and failure to reduce will certainly result. For emphasis, let me say that the skin breathes, taking in oxygen and passing out body poisons. A skin not bathed and exposed daily to sunlight and moving air violates nature's intention that the body should always contact the environment. A skin so treated becomes sluggish and the entire chain of body functions more or less under its control becomes more or less dormant. Oxidation, or burning up of waste products, is one of these functions. When body waste is not completely burned in the body it is often stored as fat. Oxygen taken in through the skin helps to burn up this waste and eliminate it as gas and water, greatly assisting in fat reduction.

Muscular exercise operates in the same way. The deep breathing following exercise means increased burning up of the stored up energy or fat, thus using up great quantities of the body's oxygen and deep breathing becomes necessary to restore the oxygen supply. The greater the amount of muscular exercise the greater the burning up of food and other body debris, which cannot then be stored up as fat. Moreover, if starches, sugars and fats are not extensively used in the diet the energy used in exercising and the heat consumed in exposing the body to moving air and in cold bathing must come from the body's stored up energy and heat, the fatty tissues, thus burning them up and causing them to disappear.

The reader is warned against fears that the carbohydrate and protein requirements of the body may be too low in the diet outlined, engendered by reading treatises upon the amount of these necessary for maintenance, etc., for he must bear in mind that fruits, greens, roots and Roman Meal all contain both carbohydrates and proteins, and, better still, they are all rich in the vitalizing principles which supply stiffening or resistance to the body.

REDUCING FOODS

At the risk of repetition I want to outline here the so-called reducing foods:—All juicy fruits, apples, oranges, lemons, grapefruit, raw washed prunes, apricots, peaches, pears, melons, berries; all eaten without sugar. (Avoid sweet fruits as sweet apples, raisins, dates, figs.) Almost all vegetables, especially the green leaves of every kind, the salad vegetables; turnips, rutabagas, cucumber, onions, radishes, tomatoes, salsify, cress, and any of the non-starchy vegetables. (Avoid parsnips, beetroot, and carrots, or eat in small quantities.) All refined cereals and white flour must be taboo. Whole grains may be used but not extensively, not more than a quarter pound a day, then used at some one meal. This includes both cereals and baked products.

When bread is used, the more granular and the less spongy it is the better, for the reason that less of it will be digested, thus more of it may be used, permitting one to more nearly satisfy the bread hunger yet not tending so much to fatten. Besides, the granules which reach the colon undigested turn into lactic acid and tend to check putrefaction in the colon by killing off the bacteria that cause it. For this reason all bread ought to be made from meal in preference to flour. And since Roman Meal is so ideally balanced it is the ideal form of bread for the reducing diet, bread meaning either the ordinary loaf form or muffins, etc., that are baked from it.

The same remarks apply to fancy or refined cereals. Their quick digestibility, when digested at all, causes them to be fully absorbed before they reach the colon, adding both to the fatty accumulation and the danger of auto-intoxication from the colon. Roman Meal was devised for the express purpose of antagonizing this tendency of the modern diet to be too refined and to digest too completely, thus allowing the digestive organs to become weakened from lack of exercise, just as the muscles weaken if they are not fully exercised. Roman meal is not crushed nor rolled to make it *all* digest too easily, for that is a killing principle. It is cut into small granules with the intent that some of these shall reach the colon not digested, where they will set up the production of lactic acid and thus antagonize the production of putrefactive products. When Roman Meal cannot be had, cracked wheat or rye meal can be made to fairly well take its place.

Strictly avoid the starchy and refined cereals and white flour and polished rice, as well as potato, white and sweet, among the vegetables, also corn meal and all corn products and every kind of sweets. The amount of butter ought to be not more than the size of two or at most three walnuts in any one day. Use no other fats or oils. If the small butter allowance be eaten at the beginning of a meal it seems to satisfy better the demand for fat and supply a sense of food comfort.

A hard program? Yes, but not after you have trained yourself to it, and when you experience the resilience that comes as a result you will realize that you are wonderfully rewarded for disciplining yourself.

I may appear to some "fat" women to have made the "fat" woman out as a "monstrosity." I have called her a "sight" and made it appear that she is unlovely to look upon. But I have merely used the expressions I have heard used regarding themselves by hundreds of fat women patients. The fat—that is the grossly fat—woman generally regards herself as an altogether unlovely "sight"; and she is inclined to regard herself as the sport of an unkind fate—a fate that she cannot avoid.

However, she is entirely wrong in this belief. She *can* avoid that fate *if she will.* True, she may not become slender and willowy or gazelle-like, but she *can* reduce those hummocks of fat that destroy in her all semblance to human beauty of form and make of her, even to her own eyes, a "sight". And she *can* almost always reduce herself to pleasing proportions and a neat rotundity, again *if she will.*

But she must study out her *plan.* Haphazard living must end. She must learn new living habits and adhere to them until they become her natural, therefore easy, habits.

And, after all, this does not take very long. I have given her, in this chapter, principles upon which to base her living habits. *If she will steadfastly apply these principles she will, within the short space of a few months,—or at most a year or two—accomplish a reformation in her personal appearance that will not only enhance her personal opinion of herself, but she will enjoy the reward of mental and physical thrills that will make life take on a new and deeper meaning, therefore be much more worth-while; and she will also have lengthened by many years that deeper-meaning, more worth-while life.*

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*All references to Roman Meal throughout this chapter refer to Dr. Jackson Meal as sold in the United States (see footnote p. 327).

NOTE: Pecan nuts are now put up in cans in finely granular form, ready to sprinkle over salads. This delightful product is called "Pecano".

CHAPTER FORTY-THREE

THE FATTENING REGIMEN

Absence of fat or "thinness" that is not inbred from a long line of thin forebears is due to either a deficiency in the intake of fat-forming foods (carbohydrates and fats), or to an abnormal expenditure of energy, or to some mechanical or physiological disturbance in the body or its organs. Generally, it is due to one of the two latter causes, sometimes the former, and too frequently to all three.

The too-thin individual is apt to be a "worrier," a "fretter," a "fusser," a "high-tensioned person," a "hurrier." Thin people are rarely well-controlled and deliberate in either mental or muscular activity. Mind and muscles jump and race to every little activity. The muscles move as if they were springs. The thin person holds the chair down, holds the bed down, holds down the couch when "relaxing" upon it, presses the head into the pillow instead of giving up to it an inert mass as the cat or dog or infant always does. A thin person "holds the body together" by contracted muscles or "tension." In train or motor or street car the thin sit rigid instead of letting themselves sway and move with the jolts and jars of the vehicle.

All such habits waste energy enormously and make it almost impossible for the body to take in enough energy in the form of foods to be able to store any of it as an energy reserve in the form of body fat. For that is what body fat physiologically is, an energy reserve or reservoir.

Not only is it difficult for such a person to take enough energy food to form a reserve of it, but the dissipation of energy by the many energy-leaks above described withdraws vital energy from where it is needed to digest the energy food so that it can be appropriated by the body, and a great deal of the potential energy of the food ingested is never absorbed as energy, but as an energy destroyer in the form of some toxic substance resulting from a retrograde fermentative or putrefactive process which must take place in food material that passes through the bowel but does not digest.

A common error in the feeding habits of thin persons is the eating of chiefly "excess acid" foods, as flesh foods, lean or fat; starchy white bread and other white-flour products and refined and factory-cooked cereal foods; sugar sweets of many kinds; cream; oil dressings, etc. Such foods, by leaving an acid residue in the blood, add to the tension and the unfortunate "nervousness" of the individual and wear out and destroy the body's functioning cells by a relative acidosis.

Here is a splendid opportunity to bring into play the mental or emotional reflex chain, and also the gastro-intestinal or food chain of functions.

I have said enough in the foregoing to hint at how the abnormal mental states of "fussing," "fretting," etc., and the taking of unnatural or denatured foods both set up unnatural, therefore destructive, chains of reflex functions, resulting in a dissipation of the body's energy reservoir of fat, for we must remember here the law that "unnaturally-stimulated cells, organs or body parts tend to be destroyed."

The first indication, then, is that the mental state must be controlled because the mind acts as a Reflex Generating Centre, the character of the functions it directs or sets in motion in other parts of the body closely following the character of the mental operations that act as their controls. The mind must be trained—and it can be—to admit only optimistic, cheerful, hopeful, uplifting, trustful, friendly, magnanimous, therefore positive and constructive thoughts; thus initiating a positive and constructive chain of functions in cells and organs under its direction and control. Coincidentally the mind must be trained to shut out all pessimistic, resentful, distrustful, cheerless, hopeless, fretful, ungenerous, depressing, negative and destructive thoughts—and this, too, can be done.

When this mental training has been accomplished, the battle is half won. For, with the mind once in control of its thoughts, the fussy, staccato muscular movements and the nerve and muscle tension will soon be brought into subjection to the mind and an inestimable amount of dissipated energy saved, which alone ought to enable the body to take on weight and an energy reserve in the form of body fat.

Simultaneously with the cultivation of a state of mental or emotional and muscular placidity certain changes of the utmost importance must be made in the foods. In making these changes it must be kept in mind that "only naturally-stimulated organs can function normally," and that only natural foods are the natural stimuli of the gastro-intestinal tract, and of the reflex chain of functions to which it acts as a Primary Reflex Generating Centre; and in the absence of which natural stimulation that chain will not function normally and must function abnormally—abnormality of function in any organ meaning ultimate destruction of that function; the destructive influence extending also to all other functions through the intercellular ramifications of the reflex nervous system.

Please go over the last three paragraphs again, for the thin or emaciated person must know well the reason for that thinness, if it is to be conquered. No half-way measures, no mere stuffing with "lots of good nourishing food" will amount to anything, unless it be harm. In fact, mere stuffing may, and often does, result in increased emaciation, for the good reason that the stuffed-in foods are acid-forming and an excess of acid already obtains in every emaciated person's blood—generally is the leading cause of the emaciation.

To start in with, I would advise every very thin person to procure from the library, or, better, to purchase, a copy of Annie Payson Call's great book, "Power Through Repose," and from its pages learn how to relax the mind, the nerves and the muscles. To those who do not care to do so, I can only say turn to chapter forty-one and read and reread what I there have stated concerning this most essential feature of training for health and a natural immunity from disease. Having become familiar with the matter of that chapter, and put its suggestions into practice, we are now ready to go on with the consideration of how to overcome thinness or emaciation.

Our first move, of course, ought to be to determine the cause of the thinness. Which of the causes, or what combination of causes, mentioned in the first paragraph of this chapter, is operating in any individual case? Or is it none of these but instead a hereditary condition, the body of the thin individual being in perfect health? It is important to determine, for if it is the latter then there is no anatomical or physiological defect to correct, and enforced rest, without reducing the food intake, or enforced feeding beyond the normal capacity, will only eventuate in disease.

There is but one logical thing for the hereditarily thin person to do, and that is to eat freely of the natural foods: Roman Meal, milk, vegetables, nuts and fruits, and thus keep the body fully vitalized; and also take enough systematized physical exercise to build the muscles up to their full limit of development, and thus make the body look "fatter," although it will not be, since fatty deposits are not intended for that type of human being. But such have the consolation that fat is infinitely less vital than muscle; fat having, in fact, no vitality whatsoever.

It is also important to determine the cause, for the reason that if it is anatomical or mechanical, more attention than just forcing the feeding or cutting down the energy output is needed. The mechanical defect must be remedied.

The chief mechanical defect in these thin cases is the relaxing of the supports of the abdominal organs by which they are allowed to sag to a lower point within the abdomen than is normal, and in sagging interfere with their blood supply, and also interfere with the emptying of the internal organs, particularly the stomach. Now one of the chief supports of the abdominal organs is the tonic state of the abdominal muscles, forming the abdominal walls. Also, the chief cause of the dropping down of these organs is the atonicity or relaxation of the abdominal muscles.

Almost invariably the very thin person, other than the hereditary type, has these relaxed abdominal walls, which allow the organs to sag, and this often so interferes with their blood supply as to cause serious disturbance of appetite as well as serious disturbance in the digestive power, so that what food is taken is made improper use of, often poisoning the subject as much as, or more than, it nourishes.

Assuming that the muscles or walls of the abdomen are relaxed, what is to be done about it? Manifestly repair the walls. By operation? No, but by suitable foods and suitable exercises. The muscles of the abdominal wall must be toned up before any improvement, or at least any permanent relief, can be hoped for. The exercises used for this purpose are those bed exercises numbered 1, 2, 3, 4, 6, 8—also the standing exercises Nos. 1, 4, 8—in chapter thirty-eight; especially the bed exercises. These must be very gradually developed and not taken on with too great rapidity. Go through each movement three to five times only at the start, at each seance, and increase one or two times each or every alternate day, otherwise the results will be disappointing, if not disastrous. A very effective exercise is to lie on the back and raise the head and upper body far enough from the bed to tighten the abdominal muscles and then pommel the abdomen with the closed fists for a few seconds, then relax for a few seconds and repeat. This pommeling must be done very lightly at first, but later on with all the force of the arm muscles, and repeated always to tiredness.

In addition to these exercises, the sufferer must learn to stand and walk in the proper attitude. I shall avoid all technicalities and make myself better understood by saying the proper standing attitude is that assumed when we try to "stand tall," that is, try to make ourselves as tall as we possibly can. Try this and you will know better how to stand. Have someone measure your height while you try to make it as great as you possibly can and while doing so note just what is the way you stand, and that is the standing attitude I am trying to explain that must be aimed at by the sufferer from relaxed abdominal walls.

Note the weight on the balls of the feet, the abdomen drawn in, the shoulders back and chest forward, the chin up and head drawn back, all of which places the abdominal organs in their best possible position for proper functioning. This is also the proper attitude for walking.

Now we have controlled the nervous and muscular waste of energy and done what we can, or are doing it, to correct the mechanical interferences with nutrition, excepting, of course, those cases of internal adhesions and other purely surgical conditions, which do not concern us here, since they are strictly hospital cases and belong in the domain of surgery.

What next are we to do for these emaciated cases? There are only two things we can do, viz., cut down the output of voluntary energy and increase the intake of energy-producing foods, guarding the latter from producing harmful consequences by associating them with sufficient vital or living and alkaline-rich foods—the entirely natural foods.

It is because this latter precaution is so seldom taken that the so-called fattening diet so often fails.

The reader already knows the effect of "excess acid" foods, and "dead" foods on the body. An intelligent consideration of that effect ought to inform us that in some subjects there would be a wearing down of the body cells, especially the reservoir of fat, by reason of the exciting effect which accumulating acids, and other debris, must have upon the nerves of movement or motion in some individuals, causing a ceaseless and useless expenditure of energy, and thus of the energy reserve.

To put the matter more plainly, body fat is unspent energy. Body fat or energy is spent by muscle contractions, the functioning of all the body cells and organs and the carrying of nerve impulses. But it is in the involuntary muscular and nervous acts that energy is usually wasted. If muscle and nerve work can be controlled the body accumulates energy in the form of fat, provided the foods are energy-producing. But if the foods provide an accumulation of irritating body acids along with their potential energy, and these acids irritate or excite the nerves so that they continually waste energy or fat by carrying abnormal and useless impulses; and if the muscles continually contract in useless tension as a result of these useless and aimless nerve impulses, or overact in every useful movement, it can be easily seen how this must break down and burn up all body fat to produce the energy to perform this needless nerve and muscle work.

Now what are the foods generally recommended to produce a store of body energy or fat? Almost always starches, fats and oils, sweets and meats. And of these the starches are almost invariably made up of white flour, polished rice, cream of wheat, farina, corn flakes, rolled oats, etc., every one of them a highly "excess acid" food, and a devitalized or dead food, because the alkalis and the life germ have been refined and milled away. Cream, butter, fat meat, lean meat, fatty fish, chocolate and sugar sweets of many kinds are all urged upon the lean or emaciated subject as fat makers, for the reason that they are rich in potential energy, therefore ought to build up a fat or energy reserve. But they are all "excess acid" and in certain bodies these acids do as already pointed out.

In other bodies, with a different nervous organization, and, perhaps, some defective endocrine function which lessens oxidation or burning up of certain body wastes, these foods will produce fat very quickly, but they will also produce disease in that type, for it is well known that the easily fattened type of body is comparatively short lived.

But such foods are poison to the constitutionally thin, by which I do not mean hereditarily thin; that is, they are poison unless their acids are neutralized by a coincident free use of raw and slightly steamed or baked green vegetables and lots of raw fruits; avoiding a too free use of the very acid fruits as oranges, grapefruit and lemons, but freely using milk, at least a quart a day. These latter foods also vitalize the body.

Generally, the thin person will do well, in starting out to put on fat, to fast for a few days, at least three or four, taking only the juice of one orange in a glass of water every two hours; and wash the bowel out with a two-quart enema night and morning each day of this orange juice fast, adding four level teaspoonfuls of table salt to each two quarts of warm water, for the enema must be warm, about 110 degrees F. This fast is to rid the body of those accumulated acids that cause wasting, and also to create a natural hunger for simple natural foods.

First thing in the morning following the fast, take two glasses of cold, warm or hot water, an hour before breakfast; follow with a warm or cool shower or sponge bath, very short and brisk. Half an hour later take an apple or an orange, or the juice of an orange in a glass of water, and in another half hour take a good-sized dish of Roman Meal porridge, enough to satisfy hunger, with rich milk or medium cream, and add as much sweet fruit as desired for sweetness, that is, raisins, dates or figs, but never sugar. If honey does not cause fermentation, and is preferred, it may be substituted for the fruit. Make the porridge thick; relax while eating it, and chew it very thoroughly in order to secure all of its rich nourishment and alkaline salts. If time permits, be sure to lie down after eating—always—for a quarter to a half hour. In any case, be sure to relax and refuse ever to be in any sense hurried or worried or fretted. Maintain the mind in a pleased and optimistic mood. At noon eat plentifully of potatoes—baked or steamed in skin, but anyway potatoes or sweet potatoes, with plenty of butter and a large salad, or lightly steamed vegetables. In addition, eat some fatty cheese, or mixed fat and lean meat or fatty fish, if you have no ethical reluctance to eating flesh and are not past forty-five years of age; or two softly-cooked eggs (cooked any way but by frying); or baked beans, or eight to ten walnuts, brazil nuts, or other fat-bearing nuts. Eat no dessert unless it be ice cream or sweet or subacid fruits. Eat all of the simple foods mentioned you care for and let the meal end there. If meat or fish is taken no milk may be taken, but if any of the other proteins are used the drink may be half-and-half, cereal coffee, or plain water, but the food must be chewed and swallowed by itself and the drink taken without food in the mouth. If no meat or fish has been eaten, the drink may be rich milk instead of half-and-half. Again relax after meal and lie down if possible. At evening meal, eat steamed vegetables served with an oil dressing or butter, Roman Meal* steamed pudding, muffins or johnny-cake or bread made from Roman Meal and eaten with butter in any reasonable amount. If honey agrees well, eat honey with the Roman Meal baked product. Again rest and relax after the meal and keep cheerful and optimistic, expecting only the best. The noon and evening meals may change places if preferred, and each individual ought to choose whichever of these is the most digestible for the evening meal.

When Roman Meal cannot be conveniently had, whole wheat may be substituted, but Roman Meal is alkaline and whole wheat is acid-forming, which makes Roman Meal much superior to all other grain foods.

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*All references to Roman Meal throughout this chapter refer to Dr. Jackson Meal as sold in the United States. (see footnote p 327.)

The bath ought to be taken daily, but the tepid or warm sponge or shower is preferred in these thin cases to the cold bath.

Give the bowels a chance to move after each meal, even when there is no hint at all from nature. After a time desire will come after each meal, if the habit is consistently developed.

The thin subject should, in addition to training to relax and control all fictitious muscle movements and tension, take every opportunity to lie down and rest, and, by all means, be eight to ten hours in bed, placid and relaxed.

In some resistant cases it may be necessary to go to bed and remain there for three weeks, drinking six quarts or more of milk every day, in order that a start may be made.

The thin person is to exercise systematically, but never to excess. The bed exercises outlined in chapter thirty-eight ought to be taken every day, the best time being first thing in the morning just before the daily bath. The thin person must avoid long exposure to extreme cold, although the room must always be well ventilated just before the exercises begin, then windows may be closed if the weather is extremely cold, or left partly open if medium cold and entirely open if weather is warm.

There are cases that seem to do better on five meals a day. Such ought to begin the day very early, breakfasting about 6 o'clock a.m. Noon meal ought to be taken at 1 p.m. and the evening meal at 7 p.m. Then mid-forenoon and mid-afternoon a glass or two of rich milk, or two or three apples or oranges with one glass of milk may be taken, or several dates or figs or a handful of raisins with a glass of milk. In these cases, the three regular meals may be as outlined for the three meals a day.

Now all of these meals are richly "excess alkaline" and will not irritate the nerves, and, therefore, relaxation and mind, nerve and muscle control ought to come easy, as they must come before the spare figure can become plump or show any tendency thereto.

The thin subject must, however, try to determine whether the bones are small or large. Often persons who think they are thin are only small boned. If the ankles and wrists are very small, then it is certain the bones are small, and if the ribs are not prominently seen or easily countable, then the body is not thin and it may be a mistake to force the feeding, especially to take the five meals a day.

The thin subject must avoid all stimulants: tea, coffee, alcohol, tobacco, soda-fountain drinks, and drink freely only of water, but there is nothing gained by forcing water upon the body to the extent of eight or ten glasses a day, if not thirsty, when eating largely of fluid-containing vegetables and fruits.

Cereal coffee may be freely drunk in place of water, but use only moderate sweetening, if any, to prevent fermentation and acidity.

CHAPTER FORTY-FOUR

FOOD COMBINATIONS AND MENUS.

This is a chapter designed to assist the health student in the making of menus out of properly combined foods, compatible foods.

Those who are already well and who will follow these rules for combining foods and eating them, and who will also stimulate the skin chain of reflex functions by regular light, air and cool or cold water bathing, or at least by daily bathing, and to these add regular systematized muscular exercises to naturally stimulate the muscle reflex chain of functions, or at least do lots of walking, will almost certainly never be sick, and will die of accident or will silently slip away in a painless transition—probably during sleep—in very advanced life, as we now estimate length of life.

I say "almost certainly," for there are two other reflex chains of functions which must be properly cared for to ensure an absolute immunity from disease, viz., sleep and the mental or emotional chains discussed in chapter thirty-two. However, it is almost unthinkable that the one who has had the good sense to properly stimulate the three great chains mentioned will deliberately interfere with the perfect functioning of the other two; and it would be by deliberate interference alone that these chains would cease to be normally stimulated and, therefore, cease to function normally. For if the skin functions, with the chain of reflex functions that the skin controls; and the muscle functions, with the chain of reflex functions which the muscles control; and the food-canal functions, with the chain of reflex functions which the food canal initiates, directs or controls, are all kept up to full normal functioning power by functioning, through the means outlined in previous chapters in this book, according to the evident design and intent of God, then the sleep that is constructive, and, as such, constructs the nervous tissues perfectly, will be normal in amount and kind, unless deliberately interfered with by perverse body habits. And normal sleep cannot send out to the functions which it directs or controls any other than normal stimuli, that is, constructive stimuli; thus the entire chain of sleep-initiated, directed, or controlled functions will be normally stimulated, therefore normal in action; therefore this whole chain of functions must also operate constructively.

All of the foregoing applies equally to the mental or emotional chain, for the mind is related to the brain and the brain to the nervous system.

In order that the beginner may find it very easy to make up menus of properly combined foods, it has seemed the best way for me to proceed is to provide lists of the several kinds of foods and then show which of these lists are compatible and agree with each other, and which are incompatible and disagree with each other and thus injure the one in whose insides they happen to find lodgment at the same meal, where they cannot help fighting with each other.

LIST 1

STARCHY VEGETABLES (EATEN COOKED)

White Potatoes
Sweet Potatoes
Yams
Rice
Jerusalem Artichokes
Green Corn (late)
Macaroni
Spaghetti

Noodles
Canned Corn
Hubbard Squash
Bananas
Carrots
Beets } old
Turnips
Parsnips

(I have mentioned noodles, rice, macaroni and spaghetti in this list because often eaten as vegetable).

(Compatible with lists 3, 4 and 8.)

LIST 2

OTHER STARCH FOODS (EATEN COOKED)

All grain foods
All foods made from grains of whatever form
Bread
Cakes
Puddings
Cereals
Sago
Tapioca
Navy Beans
Kidney Beans

(Especially starchy foods are White Flour, Cream of Wheat, Farina, Corn Flakes, Rolled Oats, Rice, Sago, Tapioca).
Least starchy among grain foods are:
Roman Meal, Shredded Wheat and Whole Cracked Wheat, but more especially Roman Meal.

(Compatible with Lists 3 and 4).

LIST 3

NON-STARCHY VEGETABLES (GENERALLY EATEN COOKED)

Asparagus
Rutabagas
Cauliflower
String Beans
Oyster Plant
Turnips (new)
Beets (new)
Swiss Chard
Pumpkin
Summer Squash
Egg Plant
Artichokes
Onions
Green Peas
Kale
Salsify
Okra
Dandelion Greens
Green Corn
Green Lima Beans
Tomatoes
Lotus
Endives
Kohlrabi
Celery
Carrots (young)
Parsnips (young)
Spinach
Cabbage
Brussels Sprouts

Serve cooked vegetables only with butter and very little salt, or with sour cream, but never thicken cream with corn starch or flour.

(List 3 combines with all foods.)

LIST 4

NON-STARCHY VEGETABLES (GENERALLY EATEN RAW, OR MAY BE)

Celery
Endives
Carrots (young)
Cucumbers
Green Peas (young)
Lettuce
Turnips (young)
Tomatoes
Green Peppers
Spinach
Radishes
Cress
Parsnips (young)
Onions
Parsley
Nasturtium leaves
Nasturtium flowers
Beets (young)
Ripe Olives

(Compatible with all other foods.)

LIST 5

PROTEID FOODS

All Flesh Foods (including Fish; All Sea Foods; Game)
Eggs
Cheese
Nuts (Chestnuts and Cocoanuts excepted)
Legumes (including dried beans, peas, lentils and peanuts)
Milk
Buttermilk
Cheese
Cottage Cheese

(Compatible with Lists 3, 4, 8 and 9).

LIST 6

EXCESS ACID FOODS

(SHOULD FORM ONLY ONE-FOURTH IN BULK OF DAILY FOODS).

All flesh foods, including
  Muscle meats
  Poultry
  Game
  Fish
  Heart
  Liver
  Kidney
  Brains
  Tripe
  Sweet breads
  Any other animal parts

Nuts
Dried beans
Dried peas
Dried lentils
Peanuts

All grain foods, especially white flour, refined cereals and polished rice.
(Roman Meal is one exception among the grain foods. So are "Brekfus Puddin" and "Lishus").

Sugar
Tea
Coffee
Cocoa
All fats
Egg white
Cheese.

LIST 7

EXCESS ALKALI FOODS

(SHOULD FORM THREE-FOURTHS IN BULK OF THE DAILY FOODS).

All fruits (Citrus fruits are best alkalinizers we have).
All vegetables (especially the non-starchy kinds, Lists 3 and 4)

Potatoes (unpeeled)
Sweet Potatoes
Milk
Buttermilk
Cottage Cheese

(See also "Acid Former" and "Alkali Former" lists, chapter nine.)

LIST 8

SUBACID FRUITS

Sweet or non-tart Apples
Mild, well-ripened Peaches
Melons
Canteloupe
Fully ripe Bananas (yellow skin, black spots)
Mild, well-ripened Pears

Huckleberries
Blueberries
White Grapes
Sweet Red Grapes
Raisins
Figs
Dates

(Compatible with all lists except when digestion is weak, then do not mix with starches.)

LIST 9

ACID FRUITS

Oranges
Grapefruit
Lemons
Limes
Sour Apples
Sour Peaches

Sour Pears
Plums
Prunes
Cranberries
Strawberries
Raspberries

Blackberries
Persimmons
Rhubarb
All tart grapes

(Compatible with lists 3, 4 and 5 only.)

Fruits not listed may be determined as acid if they quickly curdle sweet milk; subacid if they slowly curdle milk and the curds appear as fine specks; non-acid if they do not curdle milk.

Some authorities roundly condemn the combining of all fruits with any and all starches and, generally, this is the correct view, but I have found a decided advantage with some persons—and I am one of them—in the combination of the subacid fruits and starches. Even when stomach fermentation is actually present, an apple will cause it to almost immediately cease and not return nor reappear in the lower part of the digestive tube. Each person, however, will have to find out for himself whether this in his (or her) case is true.

In making menus for the daily meals, if it is the desire to maintain the family in good health, it is very important to be continually reminded that meals must be simple in variety and simply prepared, come as near the primitive as possible.

To start out with, the maker of a menu ought to realize that of the whole day's foods three-fourths in bulk ought to be selected from the excess-alkali list (No. 7) and only one-fourth from the excess-acid list of foods (No. 6) to ensure the normal alkalinity of the blood, and thus guard against a relative acidosis. (See chapter nine.)

Having fixed this point in the mind, the next thing to make sure of is not to mix any of the foods in list 5 with those in lists 1 and 2, except when the digestion is very powerful; and not continuously then if it is desired to always keep digestion very powerful. Potatoes may be made an exception to this rule, although not continuously, if the digestion is strong.

When the digestion is very weak and fermentation is regularly present the habit of mixing even potatoes and proteins is health-suicide. In cases where digestion is vigorous, if a small quantity of potato is well mixed with saliva, it will be digested in ten or fifteen minutes, which hardly allows time for the checking of digestion by the secretion of acid gastric juice. This exception is possible only because potato is the most quickly digestible of all the starch foods, if thoroughly mixed with saliva, and is itself strongly alkaline, being very rich in sodium and potassium.

The third thing to remember is to avoid mixing foods from list 9 with foods from lists 1 and 2. (See chapter nine.)

Although foods from lists 1 and 2 are not chemically incompatible with each other, it is inadvisable to mix them, in the first place, because of too great complexity where we need simplicity; and, in the second place, the digestion time is often widely different and this increases the strain upon the secretory mechanism; besides, there is the danger of eating too much starch and also too much food. Variety is the great cause of overloading.

Milk and meat ought never to be mixed in the same meal for similar reasons, the danger of overloading the blood and tissues with protein and the poisonous end products of protein metabolism. Besides, while milk and meat are not chemically incompatible, milk requires a mild acid for its quick digestion and meat a strong acid, and this strong acid makes milk protein form into a tough clot instead of a fine, easily-digestible curd.

Sugar, candy, syrups, honey and other sweets ought not to be eaten at same meal with meat, because the sugar is almost immediately available for heat and cellular energy, and if the cellular demand for energy is thus quickly satisfied the digestion of protein is slowed and often decomposition is induced or extended by such mixtures of sweet and meat.

No two items from list 5 ought ever to be eaten together, because of the danger of protein excess. Most persons overeat on protein even when confining themselves to one protein item, causing great strain to the organs, but especially to the kidneys.

The hard-working man does not require much more food from list 5 than does the sedentary, indoors-worker. What he does require a great deal more of is foods from lists 1 and 2 to supply the extra energy expended in his muscular work; also considerably more food from lists 3 and 4 to neutralize the acids formed by the breaking down of so much cellular tissue and so much energy-forming food.

Foods that are compatible are those from lists 1 or 2 with those from lists 3, 4 and 8. Such a meal is called a starch or energy meal. Foods from list 5 are compatible with those from lists 3, 4, 8 or 9. Such a meal is called a protein or building meal.

Only one protein meal and one starch meal ought to be eaten in one day. If an additional meal is eaten, it ought to be fruit or fruit and milk, or fruit and half-and-half (half milk and half boiling water).

In summer the fruits ought to be acid or subacid—the juicy fruits. In winter, they may be the sweet fruits, especially for those who have a tendency to feel cold.

If the digestion is weak, or there is stomach fermentation, the sweet dried fruits ought not to be mixed at the same meal with juicy fruits.

Milk is perfectly compatible with all fruits, even the most acid, but the fruits and milk ought to be chewed well together. Milk is a food, not a drink, and it ought always to be chewed. Chewed together with acid or other fruits it is more easily digested than when taken by itself.

All melons and canteloupes are classed as both vegetables and fruits, but when the digestion is weak they ought to be eaten only as a light meal in themselves, that is, with no other food.

Vegetables, when cooked, ought to be baked or steamed. The leafy vegetables ought to be well washed and the roots well scrubbed with a vegetable brush—even with soap and water—then rinsed well either in running water or several changes of basin water. They ought never to be scraped. All roots that are steamed or baked in the skin ought to be punctured here and there with a fork during or before cooking. Potatoes are more delicious when baked, but they lose some of their best food properties in baking, for the skin becomes almost carbonized before the inside is baked through, and this destroys the valuable protein and some of the most valuable salts, which lie in the skin and a layer of cells just beneath the skin. But, if one is taking a well mixed and combined diet otherwise, this need not be taken into account.

If vegetables have to be boiled, for any reason, use only enough water to keep them from burning. Save the water, and salt and butter to taste, then add evaporated milk, generally in proportions of one-fifth milk to four-fifths vegetable water and serve hot as a most delectable broth. In this way the vegetable salts are saved to the food.

Avoid corn-starch and white-flour-thickened sauces for vegetables that are cooked. Use only butter and a little salt, or cream or even evaporated milk. Thin subjects, who tolerate fats well, may use oil or oil dressings made without vinegar. I always find it hard to get people to understand that bread and protein should not be eaten at the same meal. But bread is starch and starches and proteins are incompatible. Bread and protein foods—meat, eggs, cheese, etc., see list 5—are incompatible. Eaten as parts of the same meal they become one of the chief causes of the diseases of civilization.

Dried beans of every kind, dried peas, lentils and peanuts are all rich in both protein and starch, therefore they are difficult to digest and should not be eaten with other starch or protein. With salad or cooked vegetables they make a full meal.

Acid and subacid fruits may be eaten as a dessert with a protein meal and, in cold weather, the sweet fruits may also be eaten with such a meal as a dessert.

Subacid and sweet fruits, excepting prunes, may be eaten with a starch meal, except when the digestion is very weak and marked fermentation follows.

Personally, I find the best starch meal to consist of Roman Meal porridge and milk or mild cream, without sugar, or with a few raisins mixed in with the porridge for sweetening; and a salad of leafy vegetables, generally eaten without dressing of any kind. If dressing is used it is the mayonnaise dressing made according to the recipe at the end of the menus. Some Roman Meal baked product, as muffins, johnny-cake or bread with butter and a large leafy salad is equally satisfactory—for those who cannot chew the porridge, more satisfactory. I generally eat a muffin at end of the meal with butter and honey as a dessert, but those troubled with acid stomach or fermentation had better be very careful with the butter and honey, as these with starch foods favor acid fermentation. If I do not have this dessert I always eat a little raw sweet fruit—raisins or dates—as a dessert.

Porridge should always be well chewed. Those who have not sufficient self-control to be able to chew porridge are not likely ever to be immune from disease, since self-control must be mastered before immunity can be reached. Immunity from disease means perfectly-functioning organs through perfectly-functioning nerves, but uncontrollable nerves are *never* perfectly-functioning nerves.

Eating improper and unnatural foods is one of the great causes of uncontrollable nerves; therefore, those who cannot control their nerves well enough to be able to chew Roman Meal porridge thoroughly are in need of just such food as Roman Meal to enable them to develop a normal nerve control. Those who cannot control their nerves sufficiently to chew Roman Meal porridge should resort to Roman Meal baked products at first, for they are easily chewed. The nerve-building elements in these properly-combined whole grains will lend great aid to the development of nervous control. It is because Roman Meal is that kind of a food that I prefer it to all other grain foods.

There are dietitians who would do away with all grain foods, even the whole grains, but such dietitians have no sufficient answer to the enquiry how it is that the Bulgarians, who have lived for centuries, and still so live, upon black rye bread and sour milk, with some vegetables, are the largest and longest-lived of all the races of civilized mankind. The Bulgarians show one centenarian in every two hundred and fifty of the population, while the best that the other civilized nations can show, as Canada, United States, Great Britain, France, Germany, etc., is one centenarian in every ten thousand of the population. Moreover, many of the centenarians in Bulgaria run up into the century and a quarter. Of course, another principle that I am contending for enters into the securing of this unique result, that is simplicity of meals and naturalness of foods; simplicity of preparation and retention of the vital or Life Principle of foods.

But the fact remains that whole-grain foods must be compatible with long and vigorous life. Not only must this be true, but I am daily proving that it is true.

To support this view one has only to consider the Highland Scotch race, the next most vigorous and most largely developed physically of the modern races of men. For ages this race subsisted upon natural, unrefined oatmeal and milk. Macaulay states that if you had chanced into a Highlander's hut before 1745 the fare the Highlander would have offered you would have been as coarse as that upon which he fed his cattle; but think what that coarse, natural food made of the Highlander.

Any food from list 5, and it ought to be always only one food from this list at any one meal, is compatible with any food from lists 3, 4, 8 or 9. Any meal made up by combining any one food from list 5 with any foods from lists 3, 4, 8 or 9, is called a protein meal. And only one such meal ought to be eaten in any one day. And make special note that the foods from lists 3, 4, 8 or 9, ought to form the bulk of the meal. In this meal, the foods, other than that one from list 5, are better taken as a large salad, consisting chiefly of leafy vegetables; and some lightly-steamed roots or leaves. But the meal may be entirely made up of one protein from list 5 and raw vegetables eaten as salad, this being my own general practice, finishing with some of the fruits as dessert; generally juicy fruits in summer and sweet dried fruits in winter. My selection from list 5 is generally nuts or new cheese, but occasionally I use baked beans and rarely eggs.

The laboring man or muscle-working mechanic, or the athlete, will not require much more food from list 5 than the sedentary worker; but these classes will require a lot more foods from lists 1 and 2, perhaps also from list 3; for 1 and 2 are the energy-producing foods and list 3 is energy-producing, but to a less extent than 1 and 2; and also alkalinizing. But the raw foods must never be forgotten since these are more vitalizing and thus develop more bodily endurance and resistance to disease.

We have now provided for two meals in the day. It remains to provide for the third, and three meals a day, properly selected and controlled as to quantity, are not too much food. Certainly not when following the program outlined in this book.

This third meal ought to be a bulky meal, containing more tissue-vitalizing and regulating elements than tissue-building and energizing elements. Bear in mind that practically all foods contain tissue-building and tissue-energizing values, therefore, when we eat the so-called tissue-vitalizing and regulating foods we are also eating some building and energizing foods. We need, therefore, have no fear for the lack of building, repairing and energizing requirements of the body when making one entire meal of the vitalizing foods. The third meal, then, ought to be made up of uncooked fruits or salad, if salad is individually better liked. Uncooked fruits and salads are very vitalizing, because they still retain their Vital Principle untouched and unvitiated by refinement or by being subjected to life-destroying temperatures. They are also rich in alkaline salts from food sources, the only elements intended by nature to keep the blood normally alkaline. These foods can transfer both alkalis and vital resistance or abundance of life to the persons eating them. The Vital or Life Principle in these living foods gives the body cells great tenacity, great endurance, while the alkalis regulate the cellular activities and lessen the need of resistance, greatly conserving the body quality which makes for long and healthy life; for the body is doubly protected against the tendencies to disintegration and disease, inherent in all but highly-vitalized flesh.

There are those who object to the use of sweet and juicy fruits at the same meal, but I have never been able to see the reasonableness of this restriction. Both contain the same elements and differ chiefly in that the sweet fruits contain more sugar. But all fruits contain some sugar and if the sweet and juicy fruits ought not to be eaten together because of their differing percentages of sugar-content, neither ought the different kinds of juicy fruits to be eaten together for they differ also in the percentages of sugar-content.

If it is contended that the digestion-time differs, then that principle admitted would limit us to the taking of almost none but *mono meals*, a meal made from only one item of food, for the digestion-time of most foods differs more or less.

At any rate, I use fruits indiscriminately, in my own diet, and find no disturbance at all from the practice. I only separate them in cases of those human gas-factories who turn almost everything into gas and retain it to distend stomach and bowels. Even when the gas so freely formed passes off as freely as formed, I do not proscribe mixed fruits but only in the case of a "static" bowel, in which the gas accumulates and distends and stretches the muscular walls of the bowel, thus tending to paralyze it. I look upon gas that passes off as freely as formed as beneficial in that it exercises the bowel muscles, since gas cannot pass off without bringing those muscles into play to expel it, thus exercising them. And well-exercised bowel muscles are never associated with constipation. It is the over-distended, static bowel that is stretched and weakened by gas accumulation, never the active bowel.

Generally the only distinction I make is to press the sweet fruits when more body heat and more energy are required, and the juicy fruits when more body cleansing and body cooling are required. And this is a sound, dietetic principle.

Both kinds are compatible with milk—make ideal combinations with milk. Many persons, and many physicians, even, fear the combination of acid fruits with milk, because the acid fruit curdles the milk. This is a most irrational objection, *for milk must be curdled* before it can be digested. The very individuals who are denied milk and acid fruits are the ones who most require that combination. The reason is that when milk is taken into the highly-acid stomach (the kind of stomach in which the physician is apt to forbid its use), it does not just curdle, but forms a tough clot, that I have seen vomited up in tough masses that required the aid of the hands in removing. If that milk had been either acidified by fruit juices before swallowing or chewed together with acid fruit, it would have been broken up into a very fine, tender curd, easily digested by the gastric juice. Prove this by adding a tablespoonful of lemon juice to a glass of fresh milk and note the fine soft curd that forms. Stir it and note it break up even more finely still. Such acidified milk can be fed to an infant and is one of the best foods that can be fed to the "acid stomach." Moreover, the acid fruit juice is "acid" because of the presence in it of an acid salt composed of a non-mineral acid—citric or malic—and an alkaline mineral substance or base. Almost at once after eating acid fruit, acid fruit juice or the acid-milk mixture, the acid part is burned up by uniting with oxygen and disappears as carbon dioxide and water, liberating body-heat and energy in the process, and the alkaline minerals, sodium, potassium, calcium, etc., are left behind to lessen the acidity of the stomach, and, generally, to unite with carbon to form into other salts: the alkaline carbonates of sodium, potassium, calcium, magnesium, etc., the normal alkalis of human blood. So that only in the case of those individuals who happen to have an idiosyncrasy against fruit do I withhold the acid fruits and milk—and such persons are very few, indeed, in my experience. Take that person who "can never eat fruit" and fast him for a day or two until really hungry and then give him a fruit meal and see if it will not agree with him. It almost invariably will; and if it will that individual has no idiosyncrasy against fruit. It is the irritated state of the stomach from wrong food or too much food that makes it "impossible to take fruit."

It now ought to be easy for any man or woman of average intelligence, after a few minutes' study, to make out a food menu for the day's meals that will do all that food alone can do towards the development of a natural immunity from disease. It is only to be remembered that all the meals must be simple, largely natural, and three meals are to be served during the day, and three only; that one must be a fruit or fruit-and-milk meal; (or a salad-and-milk meal); another must be a starch meal, consisting of a salad (second choice, subacid fruits), and one starch food from lists 1 or 2; and a third must be a protein meal consisting of one protein food from list 5 and a salad and two or more steamed vegetables.

Remember that all fruits are compatible, that is, go together, except in rare cases of idiosyncrasy, and that in cases of those who think they cannot eat fruits it is, usually, the fruits with a lot of other foods they are unable to eat. Fruits in a rested stomach, by themselves or with milk or half-and-half, will almost always agree well.

Now we have our fruit meal arranged quickly and easily, but let us devote a little more attention to the starch meal. Turn to lists 1 and 2 and select any one starch food—generally it ought to be potatoes or Roman Meal, because only natural foods are vitalizing and only Roman Meal and potato are alkaline among the starch foods. If Roman Meal is cooked as directed elsewhere in this book (see chapter thirty-six) and potatoes are steamed or baked in the skin, these foods can always be relied upon to alkalinize and vitalize the body.

Remember potato is the one starch food that can be eaten with protein because of its quick digestibility, therefore I give preference to Roman Meal in my starch meal and use potatoes with my protein meals, not very regularly, but frequently enough to enjoy and benefit by this splendid food.

But other starches may be selected for a change, giving preference to some whole-grain starch food, as cracked wheat or old-fashioned oat or corn meal. And these should almost always be selected when Roman Meal cannot be had. Almost all other starches are dainty, and daintiness is a sign of refinement and impoverishment of the food. Keep this fact always before the mind and guard against "food daintiness"—in the sense of food refinement—as fully as you guard against under-exercising the muscles when you want your body to look its best and be at its best.

We have now selected our starch item, say it is Roman Meal porridge, or Roman Meal bread or johnny-cake, or it may be whole-wheat bread or rye bread. We now turn to list 4 (possibly 8), and select any number of items from either—possibly both—and make into a salad, preparing the items selected in any approved way, and serve with mayonnaise or cream or preferably with no dressing at all. Certainly, use no acid or vinegar-containing dressing. For those who tolerate oils well, and who are not fat, an oil dressing made without vinegar or acid is permissible, in limited amount in hot weather, but freely in cold weather.

If the meal is for the heavy-laboring worker the starch part may be very liberal in amount, but less liberal for the brain-worker or sedentary, indoor-worker. The muscle-worker may also have a goodly supply of sweet fruits as a dessert or a good serving of honey, while the brain-worker and sedentary worker must be careful to limit the supply, unless regularly taking a lot of vigorous physical exercise. The muscle-worker may also have a glass of milk or even milk and cream, while the other two classes ought to have only half-and-half.

We now come to the protein meal. Select any one item from list 5, but never more than one. After forty-five it ought not to be flesh as a general rule, unless in very small amounts and correspondingly large use is made of the alkalinizing fruits and vegetables; and there is never any benefit in feeding to anyone more than about a quarter of a pound of lean flesh in a day, regardless of the kind of work done. But we have selected our one protein. Now select any variety of items desired from list 4, or even lists 8 or 9, and make into a salad, which may be served with oil or mayonnaise or cream dressing, or even evaporated milk. Then we select from list 3 any two or more vegetables that appeal most to us and steam them until tender, but never until they are mushy and lose their natural color. Leafy vegetables, particularly, ought never to be cooked into a pulp, and they are delicious—much more delicious—long before they are cooked to the pulpy stage, also much more vitalizing. In fact, when cooked to a pulpy or mushy mass, they are really "dead" foods and one might as well eat white flour or refined cereal foods. Serve these steamed vegetables with only butter and a very little salt, never with any other seasoning.

The muscle-worker may add potatoes to these vegetables, steamed or baked but never peeled and boiled nor fried, and never served with "made" gravy to which flour or cornstarch is added. Better served with butter or the "dish gravy," the real juice of the meat, if meat is served. The worker may also add an oil dressing freely to his salad, because of his need for the energy foods, starches and oils being energy foods.

Juicy fruits or the sweet fruits may be used as a dessert with this protein meal. The hard-worker ought to prefer the sweet fruits and the sedentary worker and brain-worker the acid fruits. The former needs energy, the latter need cleansing and purifying foods.

There should be no class of workers to whom the above dietary will not supply sufficient energy, after the toxins of overfeeding have been eliminated; but if there should be some very hard muscle-workers who need more energy than is supplied them, such may add to the fruit meal, if the fruits are selected from list 8, very dry-toasted Roman Meal muffins or well-toasted Roman Meal johnny-cake, or well-toasted whole-wheat or Roman Meal bread; but be sure the toast is toasted through and through, not doughy in the parts beneath the thin scale of toast. These may be eaten with a fairly generous supply of butter, and even a little honey may be added, all of these foods supplying great amounts of energy. The sweet fruits may also be increased over the juicy fruits at all meals and this diet will supply oceans of energy and also resistance and vitality. But the sedentary worker and the brain-worker ought positively to eat only fruit or fruit and half-and-half at some one meal in the day.

I shall now feel that I have done all I possibly can to direct the makers of the daily menus in the making of health and immunity-building meals after I have supplied them with a few sample menus, as follows:—

BREAKFAST

(1) Roman Meal porridge with milk or cream, or milk and evaporated milk. If sweet must be taken, use sweet fruits or honey, no sugar. Add a good bowl of salad or else fruits from list 8. If drink is needed, a cup of half-and-half (half milk and half boiling water) or Kofy-Sub.

(2) Toasted Roman Meal muffins or toasted Roman Meal johnny-cake or toasted whole wheat bread. (These breads ought to be well toasted, through and through.) Serve with butter and honey. The brain and muscle-worker may eat freely of these muscle and brain building foods, but the indoor sedentary-worker can easily overeat of them unless taking plenty of out-door muscular exercise. Two or three muffins or an equal amount of johnny-cake or bread ought to be sufficient. Add a bowl of salad or fruits from list 8. If drink is needed, take only half-and-half or Kofy-Sub.

(3) Hot Roman Meal muffins, quick biscuits or johnny-cake, with butter and honey, the sedentary indoor-worker observing same precaution not to overeat as outlined in menu (2). Drink only half-and-half or Kofy-Sub. Salad or fruits from list 8 as above.

(4) Roman Meal Brose-O, Chocol-O or Jell-E. (See recipes on side of Roman Meal package). Serve with milk and evaporated milk or cream or fruit jelly and cream. For sweetening, if needed, add sweet fruit or a little honey. Add a salad or fruits from list 8. These are delightful hot morning breakfasts, served from the ice, but care must be exercised to masticate well and not swallow cold, since cold foods cannot be digested until brought to the heat of the blood.

(5) Two or three slices of dextrinized toast * may occasionally

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* Dextrinized toast is made by cutting bread very thin and baking or toasting it until browned through and through. Such toast is no longer starch but mostly digested-starch, that is starch changed into dextrin, and this is compatible with any kind of food. Toasting shredded wheat biscuits, triscuits or other starch in this way robs the foods of all vitality, even if previous refinement or factory-cooking has not already attended to that. Dextrinized toast is "dead" food.

be used as a change for the more natural starch foods, but this food is totally devoid of vital principle and ought not to be eaten too often. The same applies to shredded wheat or any other factory-cooked and dried-out food. May be eaten with eggs softly cooked in any way but by frying or scrambling. A salad ought always to accompany the juicy fruits. Properly dextrinized toast may be eaten with any kind of food. (See footnote, page 420.) But when eggs are eaten with it be sure to use no other foods from list 5. For drink, use no milk when eggs are taken, prefer Kofy-Sub or water.

(6) Two or three shredded wheat biscuits, toasted through. Not more than two for the sedentary worker. These ought to be used only as an occasional change because non-vital. (See menu 5.) A salad, or fruits from list 8, ought always to be added. Drink half-and-half or Kofy-Sub. The biscuits may be served with butter or milk and fruit jelly or milk and honey.

NOON MEALS OR LUNCHES

(1) For the sedentary worker. Any kind of fruits or vegetables from lists 4 or 8. The laborer or brain-worker may add Roman Meal or whole-wheat muffins or Roman Meal quick biscuits, johnny-cake or steamed pudding, served with butter and a little honey. The sedentary worker may drink half-and-half and the laborer and brain-worker milk. Or either may drink Kofy-Sub freely as desired.

(2) Any kind of fruits or vegetables. Gelatine and cream or evaporated milk. Buttermilk or sweet milk. Laborer may add dextrinized toast and apple sauce.

(3) Salad of fruits or vegetables, with mayonnaise or cream dressing. Steamed carrots, spinach or brussels sprouts. Milk or Kofy-Sub as drink. Sweet fruits as dessert.

(4) Green corn, fruits from list 8, fresh or canned peaches. Milk.

(5) Green corn, spinach with carrots, gelatine with cream. Milk.

(6) Grapes or pears or peaches, cottage cheese with cream. Milk.

As already indicated, melons make a meal by themselves, and they are better eaten by themselves, because of their difficulty in combining with all other foods. They can very nicely be made to serve as a lunch, especially a hot-day lunch.

To any of the above lunches numbered (1) to (6), or any similar combination, the laborer may add any reasonable amount of Roman Meal bread, muffins, johnny-cake or steamed pudding, served with butter and a little honey, if he feels the need of more energy, but better avoid with melons. Kofy-Sub may take the place of milk as drink.

In making menus simply refer to these as samples and turn to the lists of foods to make up your own, after having familiarized your mind with the combination principles upon which these menus are based. If you will, you can think this is too complicated a system to work; but also, if you wish to just take the trouble for a few days or a week to read the discussions of menu making preceding these samples, you will soon find it is no trouble at all, for it soon becomes part of one's regular fund of knowledge. Even if it were no end of trouble, it is well worth while on account of the health advantage that follows.

The breakfasts and lunches are interchangeable, that is, the breakfasts may just as well be lunches and the lunches breakfasts, if they are preferred that way.

DINNERS

(1) Cream of tomato soup. Combination salad with mayonnaise or cream dressing, or oil dressing for the muscle-worker if preferred. Lightly-steamed green peas and carrots dressed with butter. One to two ounces new cheese. Raisins, dates or sliced peaches. Milk or half-and-half or Kofy-Sub as drink.

(2) Cream of asparagus soup. Combination salad with mayonnaise dressing or cream. Roast potato (in skin), with butter and a little salt. Steamed spinach and string beans, dressed with butter. Eight pecan or almond nuts with raisins for a dessert. Milk or half-and-half for drink. (Note nuts are a protein used in this meal as a dessert. Milk is also a protein, but if nuts are held to not more than eight, a glass of milk will not be too much protein).

(3) Cream of pea soup. Combination salad with mayonnaise dressing or cream, or oil dressing made with lemon juice and a little salt. (No mustard or other condiment). Poached eggs with steamed asparagus, cauliflower and carrots, dressed with butter. Sliced peaches or canned peaches for dessert. (No cake with dessert.) Milk or half-and-half or Kofy-Sub.

(4) Puree of navy or kidney beans. Combination salad, mayonnaise dressing or cream, or oil dressing made with lemon in place of vinegar. No condiment other than a little salt. Steamed cucumber and string beans. Roman Meal muffins or johnny-cake with butter and honey. Glass of milk. (In this menu the rule is broken about mixing foods from lists 1 and 5, but the protein obtainable from the puree will be small in amount and can be helped out by the protein in Roman Meal and milk, but not too much of any of these ought to be eaten. Small helpings all around will permit of this variation occasionally). Kofy-Sub.

(5) Cream of celery soup. Fruit or combination salad. Mayonnaise dressing or cream or olive oil. Roman Meal steamed pudding, with recipe sauce or honey. Milk or Kofy-Sub. Nuts and raisins.

(6) Vegetable soup. Combination salad with mayonnaise dressing or cream. Bean loaf. Steamed brussels sprouts and green peas. Roman Meal steamed pudding. Milk or Kofy-Sub.

(7) Cream of celery soup. Combination salad. Mayonnaise dressing or cream or oil dressing. Steamed string beans, cauliflower served with butter and a little salt. (No cornstarch or flour thickened white sauce). Broiled salmon steak, or boiled salmon. Acid fruits for dessert. Kofy-Sub.

(8) Cream of corn soup. Combination salad. Mayonnaise dressing, or cream or oil dressing. Steamed turnips and spinach or steamed onions. Broiled lamb chops. Berries without sugar, or acid fruits, for dessert. Kofy-Sub or orangeade (no milk).

(9) Tomato broth or tomato soup. Combination salad with mayonnaise or cream or oil dressing. String beans, parsnips (steamed). Serve with butter and a little salt. Fresh or canned peaches with cream or ice cream as dessert. No sugar, or very little. Positively none, when digestion is weak or where there is fermentation and acid stomach. Kofy-Sub.

(10) Cream of asparagus and onion soup. Combination salad. Mayonnaise or cream or oil dressing. Steamed young beets and green peas. Steamed eggs or liver and bacon. Berries, fresh or bottled pears, or acid fruits as dessert. Orangeade or Kofy-Sub or grape juice.

(Note: Salads may be suitably served with stewed tomatoes, fresh or canned, in place of other dressings).

Drinks.—I am continually asked about drinking with meals—which is better: to drink during or following the meal?

Personally, I drink water ten to fifteen minutes before meals, then during or following as I feel inclined. But I never put food and drink into my mouth at the same time, with the exception of fruit and milk, which I thoroughly chew together before swallowing. Generally, however, I direct patients to drink **after** meals to ensure that they will not wash their food down with the drink. Those who have sufficient self control to refuse drink and food at the same mouthful—to chew the food well by itself and then swallow it before drinking—will be perfectly safe to sip a drink that is neither too hot nor too cold between mouthfuls, if they prefer drink at meal times, taken in that manner. Others should always drink only after meals.

Those who complain that they find it difficult to swallow food without fluid are only confessing they have already done great injury to the secretory glands connected with the mouth, by drinking with meals, and it is very important they reacquire the habit of chewing their food without the aid of fluids other than the saliva, in order that they may force the salivary glands to reestablish their secretory function.

Cereal Coffee.—I continually receive enquiries about the wholesomeness of cereal coffee. Of course, there can be nothing but wholesomeness in such a drink, if it can be enjoyed without loading it with sugar. For many, a warm (not hot) drink is important, because of long habit and low digestive power with low vitality. But tea and coffee are dangerous to such—primarily stimulants, secondarily depressants. I drink cereal coffee freely but cannot enjoy the "washy" stuff sold by stores. I make my own with more "body" to it than actual coffee—all the rich flavor of "good" coffee—and even the coffee aroma. Write me if you think such a product would be interesting to you, or if you are seeking perfect health. I will mail you a sample if you request it.

Two-Minute Recipe for Mayonnaise Dressing.—Drop one egg, one tablespoonful lemon juice and three or four tablespoonfuls salad oil in a large bowl and beat with eggbeater for half a minute. Continue to beat and add more oil very slowly after adding salt to taste, until about one cupful of oil has been added altogether. More oil makes a thicker dressing. For variety, a small amount of blackstrap molasses may be added and well beaten in.

I have added a few more dinner menus than breakfast and lunch menus just to show that the principles of combining flesh proteins with the other foods from the vegetable world are the same as when non-flesh proteins are used.

Although all of the foregoing simple menus make up delightful meals, they merely suggest how meals are to be balanced.

In every one of the breakfast menus there is an acid-forming starch and an accompanying alkaline salad or fruit and milk to neutralize the acid. In all lunches the ingredients are almost entirely alkali-forming. In each of the dinners there is an acid-forming protein, but there are also an alkali-forming soup, salad, steamed vegetables and sometimes fruits as well as milk, to neutralize the acids formed by the protein. If the menu maker will follow these hints in making the family menus, there will never be any danger of the diseases which come from a relative acidosis fastening themselves upon the members of the household—and that means most of the common diseases of civilization.

But there are a lot of alkalis, you say. Do not fear that there will ever be too much alkali formed, for the reason that the body itself breaks down into acids through its own activities, and the alkalis from foods are what we have to depend upon to remove these acids as well as to remove the acids that enter as food acids. It is because of this double acid source that we say the diet ought to consist of three-fourths alkali-forming foods and one-fourth acid-forming foods, estimated by bulk. Moreover, the alkalis are needed in the digestive canal itself, and so is the cellulose or woody waste found in all vegetable foods that are not tampered with by human art. These substances are needed in the digestive tract to keep the muscles and the secretory glands of the bowel wall healthy and active.

Of course, these menus are different from the conventional menus of civilized peoples, but so is the bodily health that results from eating the simple, natural meals which they represent. Remember that it is only civilized people, who, of all God's creatures, are horribly diseased; and that it is the living habits of civilization that cause those diseases. And chief among those living habits, causative of disease, is the habit of eating unnatural, "dead" and incompatible foods—foods which, having no life of their own, cannot transfer life and resistance to human bodies eating and subsisting upon them; foods which, having no alkaline salts, cannot neutralize the acids formed by the breaking-down of the body cells or taken in as food, therefore tend to destroy the body cells through the development of a relative acidosis; foods which, because they are unnatural, cannot act as the natural stimuli to the whole chain of reflex functions initiated, controlled or directed by the food canal acting as a Primary Reflex Generating Centre, and all this chain of functions fails of complete functional activity, lowering the body's power to defend itself against those forces which tend to disintegrate it and cause disease. Try as we may in civilization and we still have difficulty in securing fresh and health-promoting foods, hence the great importance of entirely raw foods and lightly cooked cereals and vegetables, forming a large part of the civilized dietary.

Reform the dietary along the simple, natural lines herein suggested or directed; stimulate the skin and its reflex chain of functions by light, air and cool or cold-water bathing every day; the muscles and the muscle reflex chain of functions by systematized and sufficiently vigorous exercises, especially by swimming or walking; the slumber reflex chain (which will automatically function naturally when the three foregoing chains are properly stimulated and cared for), relaxing and retiring early, then rising early after as much rejuvenating sleep as can be had in a well-ventilated room in eight hours; and, finally, control the mind by refusing to admit other than constructive thoughts, thoughts filled with optimism and expectancy of only the best; thoughts bright with cheerfulness, hope, self-reliance and reliance in Him Who must will us only good; cultivate generosity of mind, thinking only good of others, shunning envy, jealousy, unkindness, and, barring accident, if under seventy, you can safely plan for many years of activity directed by the highest intelligence of all your life, and be certain you will live to carry out all you have planned.

The foregoing must be true since such a life is a life lived according to God's laws as plainly written down in the open book of nature.

NOTE—Roman Meal alluded to in these menus means Dr. Jackson's Alkaline Roman Meal in Canada and Great Britain and Dr. Jackson Meal in the United States.

CHAPTER FORTY-FIVE

CLEANLINESS.

No, I am not going to write in the conventional way about the necessity of keeping clean—clean hands and face, clean skin and clean clothes. The cleanliness that goes with—and must go with—immunity from disease means more, far more, than that. Clean hands and skin and clothes belong in the realm of things. Such cleanliness is material and physical and, as such, has a great part to play in the matter of developing a natural immunity from disease.

But there is a cleanliness that goes far beyond this mere physical or external cleanliness and is as much superior to it as is the mind or the soul superior to the physical body, for such cleanliness pertains to these two phases of our cosmic life—mental cleanliness and soul cleanliness.

I would, therefore, especially write of cleanliness that is supremely constructive, and therefore factors towards the establishment of a natural immunity from disease, under three heads: Physical cleanliness, Mental cleanliness, and Soul cleanliness.

Let not the reader who is a "sermon hater" become stampeded because I use the word "soul," and expect from me a conventional "sermon"; for, even if what I write should savor somewhat of a "sermon," it will be at least an unconventional sermon.

It is a majestic theme upon which a volume might be written and not exhaust it, but I have already extended the bounds of this book to more than twice its originally intended dimensions, therefore I shall briefly outline the mere skeleton of the conception and allow the reader to fittingly clothe it with the flesh and blood of his own comprehending thoughts.

As already stated, physical cleanliness refers to the cleanliness of the body's fleshy or material parts. But even physical cleanliness, properly understood, embraces far more than the ordinary conception of that term implies. To some, cleanliness means a clean face; others would add hands and ears, neck and hair; others would add clean clothes; and still others would include the entire skin. But all these may be "clean" to the point of immaculateness and yet the body be an ambulating mass of filth beyond the power of the imagination to adequately conceive, unaided by a good working knowledge of human physiology.

As a matter of fact, soiled hands and face and skin and clothes represent simply extraneous or adhesive soil—dirt that merely sticks to us externally and is in no sense a part of us; but such dirt cannot of itself make us filthy, it can only make us *look* filthy.

That dirt that can make us filthy, ambulating carcases is the dirt that is really part of us, the uneliminated, internal filth with which so many civilized beings constantly weight themselves down away beyond the normal load-line.

The body continually breaks down into tissue waste, or used-up body substance for which it has no further use. But under normal conditions, meaning natural living conditions, the body as continually eliminates this waste so that it does not accumulate as filth. But change the living conditions to unnatural ones and at once the harmonious relationship between the cellular waste and its elimination has disappeared, with such results as we shall soon see.

To continue to exist, the body must continually take into itself material substance out of which to build and renew its substance and to *revitalize,* or renew the life of, that body substance. This material the body secures in the form of food.

The body has been adapted to the use of certain kinds of food materials through the age-old living habits of the ancestors of the human race who developed the human anatomy of the digestive tract for functioning upon just that kind of food, by their having been forced to function upon it all down through those formative ages. The kind of digestive anatomy which they developed was the only kind that could properly function upon their kind of food—which is exactly why they developed it. Thus the foods and the digestive organs were naturally and mutually adapted to each other. So long as the digestive tract is called upon to use only that kind of foods for which it became adapted during those formative ages it must function normally, because in that kind of foods it finds its natural stimuli to *perfect* function. But change the character of those foods —digestive stimuli—and do not change or re-adapt the digestive tract to the changed foods or the changed stimuli, and already the natural adaptation of each to the other has disappeared and the harmonious relationship that formerly obtained has also disappeared, with such results as we are about to learn.

We now understand well the manner of life that God designed us to live—an out-of-doors life in the nude—for which purpose He gave to us that part of our Defensive Mechanism inhering in the skin and its appendages—feeding our bodies upon the unchanged foodstuffs of nature. It is that kind of living to which our anatomy and its physiology are adapted through our ancestors having thus lived throughout the ages. By living that kind of life the human body would continue to eliminate its outworn substance as rapidly as it formed, through the unimpeded functioning of that so-perfect eliminating organ, the human skin, assisted by the equally wonderful kidneys, liver, lungs and lining cells of the respiratory tract and the food canal.

But man has not continued to live in the open unclothed, his skin contacting the natural stimuli to its perfect functioning, which are a part of his environment. The result is what we ought to expect. The human skin has lost its eliminating power, to a large extent.

At the same time that man has depressed the eliminating function of the skin he has very enormously "speeded up" the living pace, so that much more cellular or body waste is formed than would be formed under the more simple life of the entirely natural man. More cellular waste and less elimination of that waste must mean what? Only one thing, internal accumulation of body waste—which becomes body filth.

But to this accumulated body filth, man adds other debris taken into the body through wrong foods and feeding habits.

I stated above that, according to God's design, man was intended to live in the open unclothed and to *feed upon the unchanged products of nature,* and so long as he stuck to that kind of foods for which his digestive apparatus became adapted through ages and ages of custom, or racial habit, harmony prevailed and digestive function remained perfect. But man *did* change, ultimately, from that long-established food habit and he does not now live upon *natural* foods. He has adapted his foods to new standards of his own—which he has the power to do—but he has not had the power to re-adapt his anatomy of digestive apparatus to that new standard and there is disharmony between the foods he uses and the apparatus he has to use in digesting and making full body-use of his foods. He still possesses a food canal or digestive apparatus adapted to a waste-filled, richly-mineralized, very simple dietary and he has put it to function upon a very largely waste-free, poorly-mineralized, concentrated and very complex dietary.

What any reasonable consideration ought to lead us to expect would happen has happened. This excessively concentrated and refined dietary and feeding by the clock, thus feeding to repletion three times a day, have caused, since they have made it possible, the overloading of the body with some food elements for which it can find no use—for two reasons—because they are more than the body needs and also because the body cannot use them in the absence of other elements refined away. This has added to the contained body filth in two ways. First, because of the absence of alkali-leaving mineral salts, removed by refining them, the body cannot neutralize the excessive amounts of acids formed by the more rapid breaking-down of tissue due to the more rapid-living pace of modern life; and, second, it cannot neutralize the great quantities of acids taken into the body in the form of "excess acid" foods.

In addition, there are no end of other poisons formed in the body, because of taking too much food and quantities of this excessively-refined food—an entirely unnatural dietary. I cannot take space to discuss these, but must say a few words about the greatest source of them—the constipated bowel, a condition found only among civilized mankind, because of the so-unnatural living habits, but especially because of civilized man's foolish food and feeding habits.

We find almost everyone living in civilization suffering from this very unnatural condition, since it is a fact that there are few whose bowels empty normally, that is, as often as their meals occur. When this is true, there must be bowel retention, which is really constipation.

In a bowel that approaches normal the food waste reaches the bowel outlet within twenty-four hours after it is ingested. This must mean that the waste from our breakfast of this morning ought to be at the bowel outlet by breakfast time to-morrow morning. Also the noon meal and the evening meal waste of to-day will reach the bowel outlet by noon and evening meal times to-morrow. Now the very fact that this food waste has reached the bowel outlet is the best possible evidence that nature intended it to be discharged. And it would be discharged in a state of nature, therefore it ought to be discharged, or God's plan is obstructed. As a penalty for this obstruction the food waste is carried back up the bowel where it is held in contact with heat, moisture and the bacteria of putrefaction or decay (rotting), and there it proceeds to decay and rot until it is discharged; and filth from this filthy, decaying matter is continually being absorbed into the blood and deposited among the body cells, leaving the body unutterably filthy with the undischarged accumulations of broken-down body cells and the absorbed products of putrefying (rotting) food from the unemptied food canal.

Yet all we need to do to prevent the development of this disgusting body state is to give a little intelligent consideration to that which nature intends that we shall do. Eat natural foods, exercise, walk, stimulate the skin reflexes by light, air and cool or cold water bathing, as outlined in the foregoing pages, sleep, control the mind as also herein directed, and respond promptly to all the calls of nature.

By mental cleanliness I mean that mental state that studies constantly how to make the most out of the body or the material self. Note I did not say studies how to get the most *for* the body or *the self*, for that is the antithesis of mental cleanliness. It is this latter mental state that begets all of our vices, commercial, social, domestic and sexual. It is the mental state of civilized mankind to-day and it operates against the health of civilized bodies in the same way as physical filth accumulations referred to above. The mind surely was not given to us as an agent with which to *get the most* for the body, but to *make the most* out of it. Since the body is the "temple of the soul," it cannot be that we were given mentality to aid us in loading that wonderful temple up with all sorts of self-coddling junk, as surely is the habit among the denizens of civilization.

That temple is being built in every case by the Life Principle, a little spark from the Factoring Power of the Infinite. And since each human mind is a little circumscribed ray from the Infinity of Illumination or Intelligence, it would surely seem as if that little ray were given to the little spark of Power, the Life Principle, to aid it in its allotted task of building out of the "dust of the ground" a noble and perfect edifice or temple for the indwelling of Itself, in accordance with the majestic design of the Cosmic Oversoul—the Infinite Lord of the Universe.

But when the human body has been thrown together, built up haphazard out of "any old materials," without regard to their suitability for the purpose of building a divinely-designed structure, until it more resembles a shack than a temple, and then that little lamp or ray of intelligence is prostituted to the loading up of the shack with nothing but encumbering junk suggested by the mere whims of such a structure, we can easily understand how the mind can and does become unclean.

It is the mind bent upon catering to the desires and whims of the flesh—and more especially the flesh that has not been intelligently built according to the plans of nature—that is almost sure to become tainted with thoughts smudged with vice. In other words, the mind that is bent upon securing the most for the body instead of making the most out of the body, making of it the most perfect of all temples of soul, is inclined to become unhealthfully unclean.

This does not necessarily imply that it descends to acts of vice and sensuality, as these are conventionally understood, but it has to struggle not to, which tends to disharmony, disintegration, devitalization and destruction; whereas the same amount of energy spent in studying how to build the body according to its divine plan would be harmonizing, integrating, vitalizing and constructive.

It is surely a notable fact that it is the pampered body that becomes the sensual body. It is also well known that sensuality originates in the mind. Thus catering to the desires and whims of the flesh, rather than to the well-thought-out requirements of the body as a "temple of the soul," not only sensualizes the body, but the mind also. And a sensual mind is an unclean mind with a destructive or disease-producing effect upon the body.

Let him, then, who would be immune from disease study first of all how to build and maintain his body in all the perfection that must have been an inclusive part of that perfect plan of the perfect Creator when He thought out the cosmic plan in all its perfect state, and, by such studied living, keep both the mind and body clean.

And, just as mental cleanliness involves the best possible thinking for the development of the individual's own body, so does soul cleanliness involve not thinking of the body at all, but how to let only the best thoughts, therefore the most constructive thoughts, enter the mind.

Constructive thoughts that have to do with the soul, because influenced by it, turn outward; they have no concern with the self, other than how to let the kindly, higher, or better, self rule. Such thoughts are concerned with the humanities; concerned not only with how to do no evil, but how to think no evil. Persons guided by soul influences not only do not seek to see evil, they seek to see no evil, especially in motive. For the evil enacted by another they seek a covering excuse, if only the excuse of human imperfection, that diminishes or absolves the evildoer from blame or condemnation. Such cherish no enmity, rancour or bitterness, but are dominated by the all-inclusive charity that covereth a multitude of (another's) sins; typified for all men, for all time, by Him Who from the agony of the cross cried out, "Father forgive them for they know not what they do!"

As already pointed out, a book might be written upon this interesting and all-important subject of cleanliness, but I must leave it here after these mere suggestions as to what cleanliness in its higher forms, such as are not seen by the eye, entails.

I know there are minds, yes, perhaps those of ninety per cent. of the *practical* people of civilization, to whom this that I have written about the less gross forms of cleanliness can have no appeal, or at most only an academic appeal. It does not "touch them where they live." For them it is "too idealistic," if, indeed, they are not still too near the animal plane to have the mental or spiritual vision that can see it at all.

Yet many of these "practical people" profess to understand and to be followers of Him Who when He was surrounded by just such another lot of "good, practical people," upon an occasion when they "brought unto him a woman taken in adultery," with the suggestion that she be stoned to death: And He answered them saying: "He that is without sin among you, let him cast the first stone at her"; and to the woman said, "Neither do I condemn thee."

But none of them threw a stone, and, under similar circumstances, neither would we, and for the self-same reason; we would not dare, for we are not without sin.

Which proves that soul cleanliness is not so "idealistic" or "impractical" after all, but only common sense, since how can we dare to be condemnatory of some other wrongdoer or breaker of the conventions, some "sinner" whose degradation consists in that his or her sin is only different from our own, and sympathetic towards our own sin or towards other "sinners" guilty of our own sin? Only because we understand the seducements in our own case and our own sin and do not in the other, which is no reason at all. Therefore, to come down to practical reasoning, there can never be any reason at all why we should adopt any other than the so-called "idealistic" attitude towards the actions of another. We can never have the right to call our own missteps mistakes, and those made by another—our brother or sister—sins and crimes which place them beyond the pale of our decent regard, when they have repented and ceased to repeat those evil acts.

A little sympathetic thinking ought to show us that to be just we ought to know the history of the "crime," and to know that in all its aspects we ought to know the prenatal and the whole postnatal history of the "criminal" or "sinner"; and if we knew all of that we would probably choke with the fullness of our sympathy, and find condemnation impossible.

All of which would not be written here if it were not for its bearing upon how to be always well, immune from disease.

The censorious "holier than thou" attitude towards another's act is but the sign-manual of a sick or unclean soul; and it is the near universal attitude of the "good" people of civilization, among whom sickness and diseases run a perfect riot. Is there here any inference to be drawn? I think so, and it is so obvious that I need not state it.

Because an unclean mind and soul are equally as disintegrating towards the material body as is an unclean skin or body interior, in that, like anger, fear and hatred and kindred emotions, they poison the scarlet fountains of life itself, thus adding to that internal uncleanness, we must, if we would be naturally immune from all disease, learn that the "idealistic" attitude is the easily practical attitude always, if only we have the will.

And, after all, what does it all mean other than the simple realization that but for the apparently adventitious circumstances that placed *me* differently, there also—in that "sinner"—am I, to enable us to say "my poor, misguided brother" or "my weak, unhappy sister," instead of using the harsher and coarser epithet that not only smudges the soul, but too well proves the already besmudged soul.

And surely all of us who have the power of self-observation or self-analysis must discern the beam in our own eye which we are enjoined to remove before we dare pick the mote out of our brother's eye.

Again coming back to the practical, that we ought to give intense consideration to these suggested ways of controlling the production of toxins or poisons in our own bodies, and also to the most efficient methods of eliminating those physiologically produced, is proved by the investigations of that great savant and scientist, Metchnikoff, whose conclusions were, after years of intense researches, that if we could prevent the accumulation of toxins in our bodies we would never be diseased and could live forever.

Let us, therefore, be resolved to keep our bodies clean internally and externally; to keep our minds clean and nonsensual (which does not apply only to sexual proclivities), by resolving to give our best thought how to make the most out of our bodies; also to keep our higher or soul natures clean by allowing only those thoughts to enter our minds concerning the acts or thoughts of another that we would ask of them towards our worst thoughts or deeds if they were ever to be found out.

These precautions added to those others already outlined in this book concerning the care of the skin, muscle, sleep, food and mental or emotional chains of reflex functions, all undertaken with whatever determination may be required to keep them up until new habits have become automatic, will pay the sublimest health dividends of which our minds are capable of conceiving, viz., a complete and natural immunity from all disease.

Put into everyday language, this simply means that we must cultivate the habit of thinking out sensible methods of living, based upon science or real knowledge of the needs of our bodies: as proper feeding habits, proper care of the skin, proper sleep, proper exercises, proper rest and relaxation and proper play. Then we must cultivate the attitude of kindliness in our relations to our fellows, both in thought and deed, and determine to let none but the elevating emotions have an entry to our lives; avoiding anger, fretfulness, fear, hatred, jealousy, and kindred emotions; and cultivate instead magnanimity, fearlessness, kindness of both mind and act and all the elevating emotions; all of which are constructive, tending to normalize the whole Defensive Mechanism through the interrelations of the reflex nervous mechanism. These qualities would be well worth cultivating if only for the smoothness they add to our own lives, but when we consider the light and joy they add to other lives and the freedom from disease they foster in ourselves they become immensely important.

CHAPTER FORTY-SIX

VALEDICTORY.

And now in taking leave of the, I trust, not uninterested reader, I venture to express the hope that no reader will lay this book aside without having imbibed the conviction that while the Creator of the human body has not revealed to us the mystical purpose for which that potentially marvelous vehicle of expression was created, we yet are certain that the creation of so potentially perfect a vehicle—so divinely designed a physical structure—cannot be purposeless.

The very perfection of the human body design, with the power given to the Life Principle to build it in all the majesty of that perfection implied by its so-marvelously perfect plan or design, together with that *creative* mental illumination which establishes in the creature the image of his Creator—the very fact of its creation—suggest, rather all but, if, indeed, not quite fully demonstrate, a tremendous purpose. Some aspects of that great purpose I have tried to shadow forth in the foregoing pages, as it has been given me to see, together with methods that are, at least, the most useful and resultful that I have been able thus far to discover for the achieving of that purpose.

I take it that there can be no question of the divine purpose and plan back of the human body. A divine plan predicates or presupposes a perfect plan, and a perfect plan surely predicates a perfect body, at least potentially. In a divinely-planned body there must inhere a capacity to become perfect. And if in the divinely-planned human body there exists the capacity to become perfect, then it must surely be the intent of the divine Designer that the human body shall be perfect. That divine intent admitted implies that a way must have been provided in nature, an entirely natural way—a way entirely aside from human artifices—by which the human body may become perfect. And if there is a way provided in nature by which the human body can become perfect, then there is a way by which that body can become naturally immune from all disease; because a perfect human body that is capable of being diseased is unthinkable. The body must first lose through habits not contemplated by its Designer its inherent perfection.

It now becomes evident why we were given our little ray of individual illumination or intelligence from the Source of all Illumination, and thus were made in the image of our Creator, viz., that we may study and recognize the means by which we may make the most *out* of our bodies—not obtain the most *for* them, and thus by nature's or God's means attain to that perfection of physique implied in the divine plan.

Not only have we been given a lamp in the form of that little ray of light and understanding lent to us from the Divine Illumination — our human intelligence — through which we are able to observe and reflect and thus reason deductively, but we have been supplied with an omniscient textbook—the open book of nature—in which is plainly written the answer to every question we may ever ask, or need to ask. With our present understanding of that divinely-derived little lamp to illuminate our divinely-engrossed textbook containing all the knowledge needed for the attainment of perfection in our divinely-designed physical bodies, what is to be our future attitude towards our physical bodies? Are we still going to prostitute the uses of that little lamp to the procuring of only a motley and needless array of physical emoluments for that body, and thus prostitute the body to an ignoble purpose for which it was surely never intended? If we are, then we must be content with the rewards derived from the defeat of the divine plan or purpose; sickness, disease and premature death; with the darkening of the soul's outlook that must be the result of such a life.

For, let no one imagine—as some do—that sickness develops or evolves spirituality, except it may, as it occasionally does, open the mind to see where the real cause of the disease lies—in unnatural living habits. Sickness may develop resignation, but that is the antithesis of spirituality, for it is pure blasphemy to attribute to the will of God to which we ought to be resigned a disease induced by our wilful doing as we wish and refusing to do as we ought. Resignation, as I have elsewhere shown, is negative; faith is positive and can only automatically come from or accompany the most abounding health. To any but the abounding in health real faith is a struggle, but never so to the truly healthy in body and mind. This is especially true of that perfection of health that has been developed by taking thought—the use of the little lamp in the search for secrets of divinely-designed health in that divinely-engrossed, wide-open book of nature.

Faith is of the soul. Sickness is physical, therefore can have no relation to the soul, except to darken and obscure it. Sickness may and does relate to the mind because the mind relates to the body; and inasmuch as sickness is related to the divine plan at all it must be only as a key for the unlocking of the mind of that body that is going wrong and thus enable the awakened mind to lead the body back from the unmapped byways of disease to the well-charted highway of perfect health where the positiveness of an illuminating, all-conquering faith, founded upon the oft-experienced efficacy of beneficent natural laws, takes the place of a blasphemous and negative resignation that attributes self-afflicted, sensually-derived disease to the will of God.

And now, reader, one last charge and I am done. Trim well the little lamp of illuminating intelligence given you by God so that its brightening rays may shed themselves abroad to illumine the magnificently-enscrolled pages of the wide-open book of nature until you can read at least the first great lesson taught therein, viz., that you owe it to your body to give to it that ordered care which the above book points out will make the most out of it, and thus ensure its building in its God-designed physical perfection; that you also owe it to your non-physical Life Principle or soul; and you owe it to the Great Designer Himself. And when you have carried out that great lesson your physical body shall have become perfect, therefore more than just healthy and well, for through its physical perfection it cannot then become ill or diseased, it shall then have attained its God-designed natural immunity from all disease and become a "Temple of Soul."